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ABSTRACT

This manual for South Carolina's child health personnel covers program planning, evaluation, monitoring, and administration, and provides standards, procedures, policies, and regulations concerning health services for children in the state. An initial section on children's health services covers eligibility; the Women, Infants and Children Supplemental Food Program (WIC); Early and Periodic Screening, Diagnosis and Children's Rehabilitative Services (CRS); the High Risk Perinatal Program; the Supplemental Security Income-Disabled Children's Program; school health services; the Preschool Health Appraisal Project; lead screening; metabolic screening; immunizations; and other Health Department services. Other sections concern anthropometric measurements of infants and children; measurement of vital signs and referral criteria for these signs; tips for the collection of blood samples in the laboratory, especially for HIV antibodies; care of the premature infant and tips for care of newborns; guidelines for physical appraisal of children; measures staff can take to protect themselves when they work with children who have HIV/AIDS, congenital syphilis, hepatitis B, or lead poisoning; screening for vision, hearing, and speech; the Denver Articulation Screening Exam; guidelines for referral to a nutritionist or to a social worker; child abuse and neglect; dental care; patient and family health education; and assessment of, and intervention for, genetic disorders. (SH)

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SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

CHILDREN'S HEALTH SERVICES MANUAL

Revised November 1990

ANNUAL VALIDATION

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CHILDREN'S HEALTH SERVICES MANUAL

DIVISION OF CHILDREN'S HEALTH

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

NOVEMBER 1990

CHILDREN'S HEALTH SERVICES MANUAL

Purpose:

This manual is intended to serve as a resource to Child Health personnel at all levels (county, district and state) in program planning, evaluation, monitoring and administration. It provides acceptable standards for Child Health patients as a component of the larger preventive health care system. It is intended to serve as a reference for personnel in other programs and agencies regarding standards, procedures, policies, rules and regulations.

The manual includes material pertaining to child health services. Materials, procedures and policies of the agency as a whole are included in agency-wide manuals. An attempt has been made not to include material found elsewhere.

Details on procedures and laws pertaining to the following need to be readily available:

Lead Poisoning in South Carolina Manual
Denver II Training Manual
Newborn Screening Manual
Children's Code

Acknowledgements

The Child Health Manual for the Division of Children's Health has been compiled by a team which includes nursing, nutrition, dental and social work input. It is meant to be a guide for those, who in any capacity, are working with children in the 15 health districts of South Carolina.

--- This manual will be reviewed annually and revised as needed. ---

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CHILDREN'S HEALTH SERVICES - OVERVIEW

Activities are aimed at children under 21 years of age with emphasis on primary and preventive care including health promotion and education. Services provided through Children's Health are primarily screening, assessment and "selected" treatment rendered by public health nurses.

These services are in accordance with guidelines, directives, and standards promulgated by the Division of Children's Health, and generally accepted AAP and APHA guidelines and current practices. These are in keeping with agency philosophy and are periodically reviewed by the Bureau of Maternal and Child Health, the Division of Children's Health and the District Medical Directors.

The extent and success with which they are being followed shall be monitored by the Division of Children's Health in collaboration with the districts.

This primary screening and treatment of "selected" public health problems has traditionally been assumed by public health nurses. Under standing orders, the public health nurses treat selected conditions.

Children's Health Services are implemented within the following context:

1. The public is informed of services provided, clinic hours and appointment systems (if appropriate).

2. Clinics are scheduled at times and places to facilitate parent/child accessibility.

3. Referral follow-up systems are established.

In addition:

1. Clinics may be conducted on an appointment basis in order to decrease patient waiting time and to allow sufficient time for interviewing, counseling, teaching, screening, appraisal, referral, etc. Additionally, "drop-in" clinics may also be provided.

2. If appointments are made on a priority basis, the health districts determine priorities based on locally determined needs.

3. The continuing need for Children's Health Services is determined in coordination with other health care providers. Children's Health need not duplicate services rendered by other providers but should assure that gaps in care do not occur.

4. Services for identified groups may be provided by Children's Health under contractual arrangements, for example, EPSDT.

Objectives

1. To evaluate and promote optimum growth and development through periodic assessment of each child.

2. To encourage good dietary habits in order to provide for optimum nutrition for children. Through the WIC Program, to provide supplemental food and nutrition education to children from birth to five (5) years.

3. To help parents or caretaker recognize and meet the health needs of their children. The areas with special emphasis are: parenting skills, accident prevention and early detection of illness.

4. To control the occurrence and spread of vaccine preventable communicable diseases by providing appropriate immunizations.

5. To serve as an adjunct to private providers and to coordinate/support other state and local agencies.

6. To provide referral services to appropriate health department or community resources when indicated.

Priorities

Although services are available to children birth to 21 years of age, it may be necessary to place priority on children 6 years of age and under with emphasis on the high risk infant.

Staff Development

It is an expectation of the Division of Children's Health that new nurses who will be working in Child Health or CRS clinics or who will be doing EPSDT Outreach, will complete the Child Health Maintenance Course (offered twice a year) in order to promote minimum level practice standards, to assure safe practice, and to help to achieve and maintain the above objectives.

A repeat of the course is also suggested for those nurses who may have had it at one time, but for whom a refresher would be beneficial.

SERVICES APPROPRIATE TO AGE AT VISIT

The following schedule defines the Child Health Comprehensive and EPSDT services appropriate for each age group. This schedule is considered to be the minimum of services consistent with good care.

For Child Health, ideally, the initial visit would consist of a comprehensive visit and return visits would be comprehensive, intermediate or brief. All components of a comprehensive visit are recommended once per year through age 5.

Flexibility in scheduling is necessary to allow for completion of all core services in the period of one year. Core services may be done on one visit or during multiple visits throughout the year.

Child Health Comprehensive/EPSDT, WIC Certification and Immunizations must be integrated into the everyday activities of Child Health services and appropriate services must be provided at each visit. Services may be delivered within the clinic or home setting.

Initial Visit (Any Age)

1. Introduction and explanation of the services of the Child Health Program and purpose of this visit.
2. Attainment of maternal, birth and neonatal history (up to age 3).
3. Assessment of family situation including socioeconomic and environmental factors, family adjustment and health status of other family members.
4. Conference with parent to determine immediate concerns.
5. Physical appraisal.
6. Nutritional assessment.
7. Developmental assessment.
8. Anticipatory counseling (age appropriate) topics for counseling guidelines birth to age 5 can be found in child health education manual, Step By Step.
9. Identification of needs and development of plan of care.
10. Assessment of metabolic status and provision of follow-up as indicated.

Return Visit (Any Age)

1. Conference with client and/or parent to determine immediate concerns.
2. Health history update and assessment of family situation.
3. Anticipatory counseling (age appropriate) utilizing topics for counseling guidelines in Step By Step.
4. Provision of services based on identified needs.
5. Needs assessment update and plan of care.

Definition of Comprehensive, Intermediate and Brief Visits

COMPREHENSIVE: A complete evaluation or re-evaluation of the patient covering all major systems, including history, physical appraisal, laboratory tests, counseling, vision and hearing screening, developmental, nutritional assessments, immunizations, etc. A comprehensive visit is done at all EPSDT screenings. (Approximate time involved - 1 to 1 1/2 hours.) All core services must be given for comprehensive visit.

INTERMEDIATE: An evaluation which includes three or more services such as a partial physical appraisal, counseling for an identified problem, WIC certification, update of health history or planning for extensive follow-up. An intermediate visit will be counted as giving three or more services but not all inclusive comprehensive services. (Approximate time involved - 30 minutes to 1 hour.)

BRIEF: Limited services such as immunization, short term counseling or follow-up on laboratory tests, anthropometric recheck, hearing rechecks, etc. (Approximate time involved - less than 30 minutes.) A brief visit will be counted as giving two or less services, for example, immunizations and counseling.

The following are services appropriate at each age, <u>This does not mean that all of these services need to be given at each of these visits</u>. Clinical judgment will help determine what service is to be given at each visit.

EPSDT patients require specific services at designated intervals. For requirement at each screening, see <u>EPSDT Screeners Manual</u>.

<u>Birth to Six Weeks</u>

1. All components of initial visit.
2. Physical appraisal.
3. Assessment of developmental status as evaluated by physical appraisal and gross assessment of hearing, vision, learning and language development.
4. Assessment of nutritional status and counseling as needed.
5. Health education - counseling as appropriate for age and needs.
6. Inquiry as to mother's health status and exploration of her plans for postpartum check and family planning. Offer Family Planning services to mother and interim method of birth control. Make Family Planning appointment for mother, if needed.
7. Metabolic screening, if indicated.

<u>Two Months</u>

1. Physical appraisal.
2. Nutritional assessment and counseling as needed.
3. Hear Kit and gross assessment of vision.
4. Immunizations - DTP, TOPV.
5. Health education - counseling as appropriate for age and needs.
6. Update child health history.

<u>Four Months</u>

1. Physical appraisal.
2. Nutritional assessment and counseling as needed.
3. Hear Kit and gross assessment of vision.
4. Immunizations - DTP#2, TOPV#2.
5. Health education - counseling as appropriate for age and needs.
6. Update child health history.

<u>Six Months</u>

1. Physical appraisal.
2. Developmental assessment - Denver II.
3. Nutritional assessment and counseling as needed.
4. Hear Kit and gross assessment of vision.
5. Immunizations - DTP#3 (TOPV, if not previously given X 2)
6. Laboratory - hemoglobin or hematocrit.

7. Health education - counseling as appropriate for age and needs.
8. Update child health history and family data base.

Nine Months (Optional visit unless infant entered the system as late as six months)

1. Physical appraisal.
2. Nutritional assessment and counseling as needed.
3. Hear Kit and gross assessment of vision.
4. Laboratory - hemoglobin or hematocrit (if not previously done).
5. Immunizations - if delinquent.
6. Health education - counseling as appropriate for age and needs.
7. Update child health history.

Twelve Months

1. Physical appraisal.
2. Nutritional assessment and counseling as needed (WIC Certification).
3. Hear Kit and gross assessment of vision.
4. Laboratory - hemoglobin or hematocrit, EP screening.
5. Developmental Assessment (Denver II)
6. Immunization, if delinquent.
7. Tuberculin skin test.
8. Health education - counseling as appropriate for age and needs.
9. Update child health history and family data base.

Fifteen Months

1. Immunizations - MMR, DTP and TOPV (if 6 months from initial series), and Hib vaccine.
2. Tuberculin skin test, if not previously given.

Eighteen Months

1. Physical appraisal.
2. Developmental assessment - Denver II.
3. Nutritional assessment and counseling (WIC Certification).
4. Hear Kit and gross assessment of vision.
5. Laboratory - hemoglobin or hematocrit, EP screening, if not done at one year.
6. Immunizations - if delinquent.
7. Tuberculin skin test, if not previously given.
8. Health education - counseling as appropriate for age and needs.
9. Update child health history and family data base.

Two Years

1. Physical appraisal.
2. Developmental assessment - Denver II.
3. Nutritional assessment and counseling as needed (WIC Certification).
4. Hear Kit and gross assessment of vision and speech.
5. Laboratory - hemoglobin or hematocrit, EP screening.
6. Immunizations, if delinquent.
7. Tuberculin skin test, if not previously given.

8. Health education - counseling as appropriate for age and needs.
9. Update child health history and family data base.

Three Years

1. Physical appraisal (to include blood pressure*; delete head circumference).
2. Developmental assessment - Denver II.
3. Nutritional assessment and counseling as needed (WIC Certification).
4. Hear Kit and gross assessment of vision.
5. *Speech evaluation - DASE. Done once between 2 1/2 and 6 years.
6. Laboratory - hemoglobin or hematocrit, EP screening.
7. Immunizations, if delinquent.
8. Tuberculin skin test, if not previously given.
9. Health education - counseling as appropriate for age and needs.
10. Update child health history and family data base.

*Procedure for this not required until child reaches this age.

Four Years

1. Physical appraisal, to include blood pressure.
2. Developmental assessment - Denver II.
3. Nutritional assessment and counseling as needed (WIC Certification).
4. *Attempt audiometric screening.
5. Speech evaluation - DASE, if not previously done.
6. *Attempt vision screening with specific tool - Snellen/Allen/Titmus, etc.
7. Laboratory - hemoglobin or hematocrit, EP screening.
8. Immunizations - DTP#5, TOPV#4.
9. Tuberculin skin test (2nd screening).
10. Health education - counseling as appropriate for age and needs.
11. Update child health history and family data base.

Five Years

1. Physical appraisal, to include blood pressure.
2. Developmental assessment - Denver II.
3. Nutritional assessment and counseling as needed.
4. Audiometric screening.
5. Speech evaluation - DASE.
6. Vision screening with specific tool, i.e., Snellen/Allen/Titmus, etc.
7. Laboratory - hemoglobin or hematocrit, EP screening.
8. Immunizations, if delinquent.
9. Tuberculin skin test, if not previously given at age 4.
10. Health education - counseling as appropriate for age and needs.
11. Update child health history and family data base.

Six Through Prepubescent Years

1. Physical appraisal.
2. Developmental assessment - school adjustment and performances.
3. Nutritional assessment and counseling as needed.
4. Vision screening with specific tool, i.e., Snellen/Allen/Titmus, etc.

5. Audiometric screening.
6. Laboratory - hemoglobin or hematocrit.
7. Immunizations, if delinquent.
8. Tuberculin skin test, if not previously given.
9. Health education - counseling as appropriate for age and needs.
10. Update child health history and family data base.

Adolescent Years

1. Conference with adolescent client alone, parent alone, then together.
2. Physical appraisal.
3. Sexual development - Tanner scale. Refer to Family Planning as needed.
4. Nutritional assessment.
5. Audiometric screening.
6. Vision screening with specific tool, i.e., Snellen/Allen/Titmus, etc.
7. Laboratory - hemoglobin or hematocrit, RPR and GC screening, if indicated.
8. Immunizations - Td (measles, mumps, rubella for females or TOPV, if not previously given).
9. Tuberculin skin test - 3rd screening.
10. Health education - counseling as appropriate for age and needs.
11. Update child health history and family data base.

Recommendations for Preventive Health Care

AGE	B-2 mos	2-4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	24 mos	3 yrs opt	4 yrs	5 yrs opt	6 yrs	7-21 yrs
HISTORY													
Initial	At first visit												
Interval	At each comprehensive visit												
MEASURES													
ht, wt	At each comprehensive visit												
head circumference	X	X	X	X	X	X	X	X					
blood pressure									X	X	X	X	X
SENSORY SCREEN													
Vision/Sight [3]	Evaluate at each visit												
Hearing [4]	Evaluate at each visit - Tested at each comprehensive visit												
Speech & Language	Evaluate at each visit												
DASE [5]	Once between 2 1/2 and 6 years												
DEVELOPMENT [6] (Denver II)			X		X		X	X	X	X	X		
Nutrition Assessment	At each comprehensive visit												
Physical Assessment	At each comprehensive visit												
PROCEDURES													
Metabolic Screening	X												
Immunization [7]	X	X	X			X	X			X			X
TB [8]					X					X			X
HCT/HGB			X		X		X	X	X	X	X	X	X
EP					X			X	X	X	X	X	
Anticipatory Guidance & Counseling	At each visit												
Dental Screen	At each visit-Referral to dentist yearly age 3 and older												

1. If a child enters for care the first time at any point on the schedule, or if any items are not accomplished at the suggested age, the schedule should be brought up-to-date as soon as possible.
2. Visits from age 7 to 21 are recommended every two years.
3. Gross vision and assessment of eyes are done at each visit. Visual acuity is checked beginning at age 3 or 4 depending on ability of child.
4. Hear kit is used until hearing can successfully be tested with audiometer (age 3 or 4).
5. Speech and language evaluated each visit. DASE is used after age 2 1/2 yrs. Required on the first visit after age 2 1/2, and not required after the 6th birthday.
6. Development is assessed grossly at <u>each</u> visit. The Denver II is <u>required</u> at the times indicated. Professional judgment will determine if it should be done at other visits.
7. Booster Td recommended 10 years after last booster.
8. TB skin test recommended at 12-15 mos., 4-6 years, 14-16 years.

ELIGIBILITY FOR CHILDREN'S HEALTH SERVICES

Children's Health: Services are available to children, youth and adolescents who desire and need them.

Age: Children from birth to age 21 are eligible.

Income: There are no income requirements. There are no charges for Child Health Services. Patients may be asked to pay for services not connected with a health program. (See DHEC Private Pay Manual)

Priorities: Since early health services may preclude problems later in life, priority appointments are given to children under six and high risk children. High Risk is defined as those children who are NICU graduates, experience medical problems during the neonatal period, have congenital defects and/or whose mother was a high risk maternity patient or children defined as high priority infants*.

Tracking: Follow-up of infants considered to be at high risk is recommended up to age 2 years to enhance their chances for survival and to minimize morbidity.

Third Party Reimbursement:

Medicaid: DHEC has a contract with the S. C. Department of Health and Human Services Finance Commission (HHSFC) to provide screening services to Medicaid eligible children and youth, birth to age 21. This contract refers to the DSS Early and Periodic Screening, Diagnosis and Treatment (EPSDT) Program.

* High priority infant information is obtained from birth certificates and is defined as: Infant - Low birth weight = < 2500 gms.

Mother -
1. Less than 18 years of age;
2. Less than high school graduate;
3. Less than five prenatal visits or prenatal care started after 6th month of pregnancy;
4. Post Pregnancy - previous live born now dead infant.

WOMEN, INFANTS AND CHILDREN SUPPLEMENTAL FOOD PROGRAM (WIC)

WIC services must be considered an integral part of health services provided to pregnant women in an attempt to reduce the health problems and subsequent physical and mental deficiencies of newborns. The program also improves the growth and development of children who receive food supplements and lessens the likelihood of disease and diet deficiencies, such as anemia.

WIC is an important component of comprehensive preventive health care and must operate as an adjunct to good health care. It is an important factor in the dramatic changes in the health status of low-income pregnant, postpartum, breastfeeding women, and infants and children. Any child under the age of 5 years presenting to the health department for any service should be considered a candidate for WIC and, if appropriate, scheduled for an evaluation.

See WIC Manual.

EARLY AND PERIODIC SCREENING, DIAGNOSIS AND TREATMENT (EPSDT)

TITLE XIX

The EPSDT Program under Title XIX of the Social Security Act, generally referred to as Medicaid, is a grant-in-aid program in which the Federal and State governments share the costs of the medical care for people with low incomes.

EPSDT services are limited to persons 0-21 years of age who are eligible to receive financial assistance (money payments) and/or medical assistance (Medicaid cards) from the South Carolina Health and Human Services Finance Commission (HHSFC). Also, individuals who receive Supplemental Security Income (SSI) benefits through the Social Security Administration are automatically entitled to Medicaid.

See EPSDT Screener's Manual for specific information.

EPSDT Outreach

The purpose of the Outreach Program is to identify eligible children who are not participating in EPSDT and to actively promote an increased level of participation in the EPSDT Program by providing professional health education and program information to parents and help them to understand the need for proper medical care of their children.

DHEC Outreach nurses work with the DSS EPSDT case manager to identify the groups and individuals to receive Outreach.

The Outreach nurse makes home visits to families of referred children for the purposes of observing the home environment, to evaluate health related behaviors/attitudes, to observe the gross physical appearance and health

status of referred children, to discuss the importance of preventive medical, and dental screenings of children at various ages, to provide information on health problems of referred children (if known) and to professionally encourage and assist parents with understanding the need for participation in appropriate EPSDT services.

Pediatric Clinic

Diagnosis, evaluation, and/or selected treatment services are also provided on a limited basis. These services are rendered by physicians and/or nurse practitioners. (The nurse practitioner shall practice in accordance with the DHEC Guidelines for Utilization of Nurse Practitioners.) The range of services provided in pediatric clinics should be dictated by the capability and resources of each individual district as well as the needs of the community.

Newborn Home Visits

As part of the Healthy Mothers, Healthy Futures Initiative sponsored by the Health and Human Services Finance Commission, all newborns of women on Medicaid can be referred for a home visit following hospital discharge. These visits can be done by nurses employed by county health departments and other agencies approved by HHSFC. The visits include an evaluation of the environment, the condition of the post partum woman, and a physical appraisal of the newborn. In addition, the family is assisted with enrolling the infant in Medicaid/EPSDT, WIC and with establishing a source of primary health care for the infant.

DAY CARE SCREENING

(Formerly Title XX)

Through Health and Human Services Finance Commission (HHSFC), Social Service Block Grant money is available for health screening of children in child development centers licensed by DSS. These screenings are for children who are not EPSDT eligible and who do not have a private provider. The development center can subcontract with the health department or a private provider for reimbursement for those screenings.

S.C. DHEC DENTAL SERVICES

The S.C. DHEC Office of Public Health Dentistry coordinates and administers various clinical and preventive dental services. The dental services available in each health district vary according to the presence or absence of DHEC dental personnel serving that particular health district. Information on the dental services available in each health district can be obtained by contacting the Office of Public Health Dentistry at DHEC Central Office in Columbia or through DHEC dental personnel that may be present in the health district.

CHILDREN'S REHABILITATIVE SERVICES

General Purpose and Principles

Children's Rehabilitative Services (CRS) was established with the Social Security Act of 1935 to enable the individual states, including South Carolina, to extend and improve health services to handicapped children. The intent of the federal legislation was to establish a program which provided for the rehabilitative needs of handicapped children as separate from primary and routine health care which are the responsibilities of other programs.

Eligibility

1. Eligibility for diagnosis. Any income eligible child having or suspected of having a chronic illness or handicapping condition which falls within the scope of CRS is eligible for diagnostic evaluation by a CRS clinician and/or consultant (up to the maximum number of visits). Based on the family's income, they may be asked to pay part of the cost of this evaluation.

2. Eligibility for treatment. Eligibiity for treatment is based on diagnosis and family income.

3. Financial eligibility. Any medically-eligible child whose income falls within the Program's guidelines which are in effect at the time of application is eligible for services. CRS currently utilizes 200% of the HHS Poverty Guidelines as the upper limit of eligibility.

4. Medical eligibility by diagnostic category. It is not practical to provide a definitive listing of all conditions and/or diseases which are accepted for services by the Program.

Please refer to the Children's Rehabilitative Services Manual for general guidelines for referrals to that service.

CAMP BURNT GIN

Camp Burnt Gin, located in Sumter County, is operated by the Division of Children's Rehabilitative Services. In 1975, the campsite was leased from the Forestry Commission for 55 years. The camp is supported by state funds and private donations.

Eligibility

Any physically handicapped or chronically ill child age seven through fifteen can apply to go to camp. Priority is given to children who are ineligible for other camping programs because of their physical handicap. Acceptance is determined by a committee of Central Office staff.

Number of Sessions

Five nine-day sessions are held from June through August. The session dates are announced in January of each year. Each February the camp director sends information to the districts regarding the upcoming camp season.

Refer to CRS Manual for application procedure and copy of application.

Camp Address

Camp Burnt Gin
Wedgefield, South Carolina 29168
Phone: 803-494-3145

HIGH RISK PERINATAL PROGRAM

High risk pregnant women are screened for factors that put them at high risk for a poor outcome, i.e., fetal death, infant death or disability. If approved for funding they are followed closely by public health nurses through the prenatal period, the postpartum period and the first year after delivery for the mother and the infant.

The pregnant woman must have her antepartum and intrapartum care provided by an obstetrician and must deliver in a Level II or III hospital. During the prenatal period, the district is responsible to assure that the pregnant woman receives a nutrition evaluation, social work evaluation and close nursing follow-up.

The infant must be examined at birth by a pediatrician. If intermediate or intensive care is required, the program has financial mechanisms and the state has referral mechanisms to facilitate this care. The program contracts with the five Level III centers* to provide neonatal intensive care, outreach education, neonatal transportation and neonatal development follow-up.

SUPPLEMENTAL SECURITY INCOME

DISABLED CHILDREN'S PROGRAM

(SSI-DCP)

The Amendment of Title XVI of the Social Security Act of 1976 (P.L. 94-566) addresses the needs of SSI disabled children from birth through age 16. Its goal is to assure that these children enter the health care system and receive appropriate services and referrals to enhance their fullest potential. (See SSI Program Manual, Appendix II.) This program has been incorporated into Children's Rehabilitative Services. Child may be referred to SSI social worker even if not on CRS.

SCHOOL HEALTH SERVICES

The health of school aged children is becoming increasingly more important to South Carolinians. School nurses in this state are employed by the Local District School Boards. The School Nurse Consultant in DHEC works with S.C. Department of Education, school health nurses and school administrators to coordinate local school and community health programs. DHEC has a written policy encouraging the promotion of meetings between DHEC nurses and school nurses. See Nursing Policy Manual - "Policy School Nurses." Copies of the School Health Program Manual are available in each county health department, each District Nursing Director's office and each district's MCH Program Nurse Specialist's office.

Pre-School Health Appraisal Project
PSHAP

Participating school districts are selected from among those 47 districts with more than 50% of their enrolled student population eligible for Free/Reduced Lunch programs. The Project is a joint endeavor of the South Carolina Department of Education and the South Carolina Department of Health and Environmental Control. It is planned as a preventive health initiative to identify health problems that might interfere with a child's ability to learn.

Comprehensive health appraisals are offered to all kindergarten students enrolled in the participating school districts. Parents are provided with the results of the exam, and assistance is offered to families needing help in obtaining a follow-up evaluation and necessary care.

BabyNet

BabyNet established a new state grant program to provide early intervention services to handicapped infants and toddlers, ages birth through two years, who are developmentally delayed, or have conditions that typically result in delay or are at risk of substantial developmental delay. This program appears as a new Part H of the Education of the Handicapped Act (EHA). The Governor has designated DHEC as the lead agency and the Interagency Advisory Committee for Early Childhood Development and Education (IAC) as the Project Advisory Committee. Specific services and eligibility are yet to be determined.

LEAD SCREENING

Available to all children. It is required annually for those from 1 to 6 years of age who come to the health department for services. Those children considered at high risk for lead are screened PRN. See Lead Manual.

METABOLIC SCREENING

Available to all children. See Metabolic Screening Manual.

IMMUNIZATIONS

The South Carolina Department of Health and Environmental Control provides immunizations for health department patients. Their recommendations are based on the Public Health Services Advisory Committee on Immunization Practices (ACIP) and the Committee on Infectious Disease of the American Academy of Pediatrics.

For information on immunization practices, consult South Carolina Department of Health and Environmental Control Immunization Recommendations or contact,

Division of Immunization and Prevention
2600 Bull Street
Columbia, South Carolina 29201
(803) 737-4160

OTHER HEALTH DEPARTMENT SERVICES AVAILABLE

Family Planning. Available to all adolescents who request the service. See Family Planning Manual.

Maternity and High Risk Perinatal Program. Available to pregnant adolescents.

Sexually Transmitted Disease Program. Available to all children and adolescents. See STD Manual.

Other services may be available in various districts. Descriptions of those services can be put here as each district wishes.

MEASUREMENTS: ANTHROPOMETRICS

Measurements are most informative over time. You may not be able to adequately judge a problem with only one measure. The **pattern** of the child's growth is significant for all children, pre term, full term and small for gestational age (SGA). Any value above the 95th percentile or below the 5th percentile on the growth grid is considered unusual and needs to be thoughtfully assessed. This may mean monthly measures or referral to a PNP/MD, depending on the situation.

Weight:

--- Weigh infants and children to 18 mos. naked.

--- Weigh children 18 mos. to 5 years in underclothes.

--- Weigh children ≥5 years in light clothing.

Head Circumference: Done routinely to age 2. If there has been any concern or question about head size, measure to age 3.

--- **Double check if >95% or <5%** or if there has been a change in the growth curve of more than a few percentile points. Head circumference size may be familial - familial may also be a problem.

--- Check Fontanelles - Check for overriding sutures, early or late closure.

On All Measurements:

USE ACCUPLOT

--- Plot all values against age on growth grid.

--- Plot weight against length on growth grid.

--- Double check any measurement that appears abnormal.

The following observations need further investigation:

-- Movement from an established growth pattern, and particularly those that go beyond the 95th percentile or below the 5th percentile.

-- Any sudden change in any growth pattern.

-- Any leveling off of growth causing a fall from growth channels. The fall may not be sudden, but seen over time it signals a chronic problem.

NOTE. If a child is premature:

a. CDC recommends not adjusting measurements for early birth.

b. Make a note on first graphing that child is, for example "6 weeks preterm."

c. Growth charts for prematures are available for more accurate plotting. Contact local Ross Labs representative or District Nutrition Director.

Nursing Procedure

Height and Weight Measurements - Infants, Children, Adults

Objectives:

Stature, weight (and head circumference on infants and children) are invaluable pieces of information for the total assessment. These measurements provide an index of the patient's well being as well as an indicator of disease or abnormal processes. To be truly utilized and significant, measurements must be accurate, obtained at regular intervals and considered with the total assessment.

Preferable Equipment:

a. Horizontal measurement board with fixed headboard, movable footboard, and fixed calibrated rule (infant).

b. Vertical measurement board, metallic measuring tape or yardstick attached to a flat wall with no baseboard. Movable right triangular headboard (older child).

c. Measuring tape made of nonstretchable material marked in 1/8 inch or 1 mm increments (for head circumference).

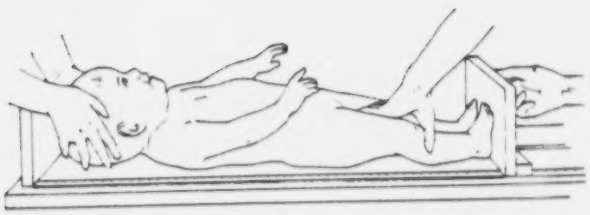
d. A standard tape measure should be used if the above equipment is not available.

e. Double balance beam for infants, balanced scales for children and adults.

Procedure:

A. Measuring on infants length:

1. Lay the infant supine on measuring board. The body must be straight, lined up with the measuring board, both legs extended.



Measuring recumbent length.

Rationale/Points of Emphasis:

During the first 2 years of life or at least until the child is 35 1/2 inches tall, children should be measured lying down on a measuring board. Children can be measured lying down to age 3.

Before you start, be sure that the measuring board is working. The footboard should slide easily but should not be so loose or worn that it slips when taking the length measurement. You will need assistance to measure children under two. The parent can help with this.

2. Have an assistant or the parent hold the infant's head firmly against the headboard until the measuring is completed.

3. With one hand, hold the infant's knees, completely straightening the infant's hips and knees.

4. With the other hand, move the footboard until it is resting firmly against the infant's heels. The toes should point directly up.

5. Read the measurement to the nearest 1/8 inch (1 mm) and record in the patient's chart.

5. Follow procedural steps 1-5 as closely as possible if no measuring board is available.

B. Measuring a child's and adult's height:

1. Have patient remove hat, and shoes.

In nutrition screening, the word stature is also used to describe a child's height. Children 2 years and older may be measured standing* but you may need an assistant and much patience to gain the child's cooperation.

2. Have the patient stand on a bare flat surface with heels slightly apart, and back as straight as possible. Heels, buttocks, and shoulder blades should touch the wall or measuring surface. Eyes should be straight ahead, arms at sides, and shoulders relaxed. Be sure that the patient's knees are not bent and that the heels are not lifted from the floor.

Use a standard measuring board or a metallic tape, yardstick or tape measure. Cloth and plastic tapes can stretch and will not be accurate.

* The weight for height graph for children 2 to 18 years requires that the child have a standing height of at least 35 1/2 inches. If the child is less than 35 1/2 inches when standing, he must be measured recumbent and graphed on the birth to 36 months chart.

3. Slowly, lower the movable headboard until it touches the crown (or top) of the head firmly. Make sure the headboard is not just resting on the hair but is actually touching the top of the head and is level.

Measuring rods attached to scales should never be used because the surface on which the patient stands depresses with weight and also, the measuring rod's hinge tends to become loose causing inaccurate readings.

4. Check the patient's position, read the height measurement to the nearest 1/8 inch (1 mm) and record in patient's chart.

Measuring stature (standing height).

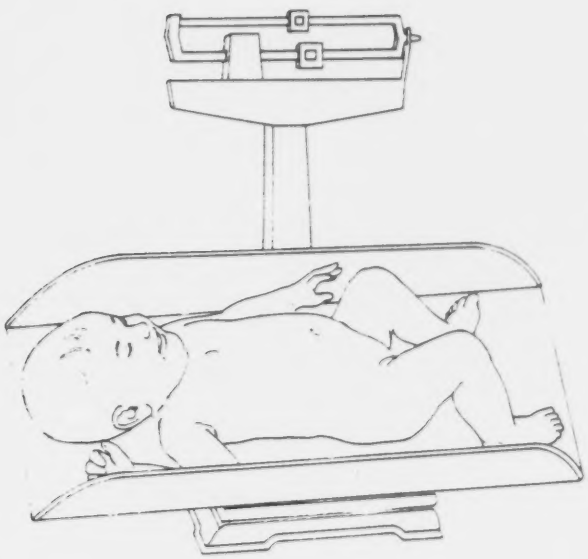
C. Measuring height bedridden patient: *see page II-10 for arm span measurement as approximation of height in children B-17 years.

1. Have patient lie in a supine position with knees straight.
2. Use a straightedge to indicate the top of the head and the soles of the feet.
3. Extend marks to the side of the mattress and use tape measure to determine the distance.

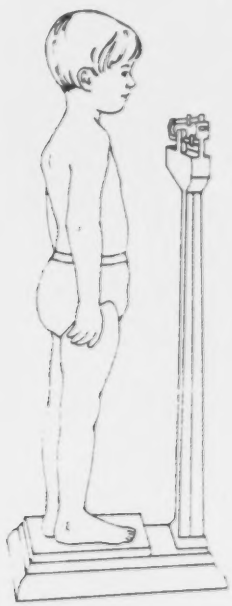
D. Measuring height for bedridden patient with contractures:

1. Use tape measure and measure patient from crown of head to buttocks, next buttocks to knee then knee to heels and add the three figures.
2. Label figures "estimated height."

E. Weighing infants and children on beam scale.



Weighing an infant.



Weighing a child.

A beam scale usually consists of two beam weights - the upper fractional beam weight and the lower main beam weight. On standard scales, the markings are often 1/2 ounce, 1 ounce, 4 ounces (1/4 pound), and 1 pound. On metric scales, they are divided into 10-gram and 100-gram segments.

Before weighing an infant, you need to balance the scale. With nothing on the scale, move both weights to zero and turn the adjustment screw until the marker points to zero. The scale is balanced when the marker is centered. If you use a paper drape on the scale when infant/child is weighed, balance the scale at zero with the drape on it.

1. Balance scale.
2. Remove all clothing including diaper on infants and children to age 18 months. Children 18 months to 5 years can be weighed in underclothes.
3. After the scale has been balanced and the weights are in the zero position, place the undressed infant/child in the center of the scale.
4. Move the lower weight away from zero until the marker drops below the center point. Then move the weight back toward zero until the marker is just above the center point.
5. Move the upper weight away from zero until the marker is centered. You may need to move the upper weight back and forth a few times until the scale is balanced.
6. Read the weight measurement to the nearest 1/2 ounce (10 gms).
7. Record this measurement on the child's chart.

A table model beam scale is best to weigh infants and small children. The scales should be checked at least twice a year for accuracy.

8. When you are finished, return both the upper and lower beam weights to zero.

F. Weighing patients 2 years and older.

A floor model beam scale is best to weigh older children and adults. Children to age 5 should be weighed in their underclothing and without shoes. Patients over age 5 should be weighed in light clothing. Every effort should be made to prevent the patient from feeling embarrassed.

Before you weigh the patient, balance the scale. Make sure no objects are on the scale. Move the weights to zero and turn the adjustment screw until the scale is balanced. The scale is balanced when the marker indicates zero.

1. After balancing the scale, and with the weights placed in the zero position, have the patient stand in the center of the scale, feet slightly apart.

2. Move the lower weight away from zero until the marker drops below the center point. Then slide the weight back toward zero until the marker is above the center point.

3. Move the weight on the upper beam away from zero until the marker is centered. You may need to move the upper weight back and forth a few times until the scale is balanced.

4. Read the weight measurement to the nearest 1/4 pound (100 gms) and record in patient's chart.

5. When you are finished, return both the upper and lower beam weight to zero.

G. Determining desirable weight for bedridden patient:

1. Obtain height or estimate height.

2. Measure wrist (see method attached to determine body build).

3. Apply 1 & 2 above in the following table to determine desirable weight for the bedridden patient:

Build	Women	Men
Medium	Allow 100 lb. for first 5 ft. of height, plus 5 lbs. for additional inch.	Allow 106 lb. for first 5 ft. of height, plus 6 lbs. for additional inch.
Small	Subtract 10%	Subtract 10%
Large	Add 10%	Add 10%

References:

1. Williams, S.R. (1989). Nutrition and Diet Therapy, 6th Ed., St. Louis: Times/Mirror/Mosby College Publishing, pp. 566.

2. Whaley, Lucille F. and Wang, Donna L. (1979). Nursing Care of Infants and Children. St. Louis: C.V. Mosby Co., pp. 55 - 56.

Approved by the State Home Health Services Advisory Council July 5, 1989.
Approved by DHEC Nursing Practice Policy Committee October 25, 1989.

ARM SPAN MEASUREMENT

If a child has contractures of the lower extremities, severe curvature of the spine, and/or amputation of the lower extremities which prevent an accurate recumbent length or standing height, an arm span can be determined. To obtain an arm span measurement, the child is sitting erect with full extension of the arms perpendicular to body length. A measurement is taken from the tip of the index finger of the left hand to the tip of the index finger of the right hand. A correction of span measurement to obtain approximate height is then made using the Englebach Table (See Table I). An example of the use of the table follows:

An 18 month old female has an arm span measurement of 33 inches. What is her approximately length?

Approximate Length = arm span measurement minus span difference (for 1 1/2 year old female)

Approximate Length = 33 inches - 1.3 inches

Approximate Length = 31.7 inches

TABLE I

AGE IN YEARS	SPAN DIFFERENCE (SPAN MINUS HEIGHT) Male	Female
Birth	-1.0	-1.0
1/2	-1.0	-1.2
1 1/2	-1.1	-1.3
2	-1.2	-1.4
2 1/2	-1.2	-1.5
3	-1.1	-1.6
3 1/2	-1.1	-1.6
4	-1.2	-1.5
4 1/2	-1.2	-1.4
5	-1.3	-1.4
6	-1.0	-1.3
7	-1.0	-0.8
8	-0.5	-0.7
9	0	0.5
10	0	0.4
11	0	0
12	+0.8	0
13	+1.3	0
14	+1.3	0
15	+1.7	+0.5
16	+1.8	+0.5
17	+2.1	+0.5

Span is expressed on the + or - differences from the height as shown in the Englebach tables.

Measuring Head Circumference

Objective:

To obtain an accurate measurement for the total assessment of the child.

Measurements must be accurate, obtained and evaluated at regular intervals and considered with the total assessment of the child.

Equipment:

1. Tape measure or inser-tape.

Procedure:

1. Pass tape around head over eyebrows above ears with reading point at side of head.
2. Hold tape against forehead and gently slide tape up and down at the back of head until point of maximum circumference is reached.
3. Read results.
4. Use appropriate age/sex growth chart. Locate age on horizontal plane and head circumference on vertical plane. Using an accuplot, place dot at intersection of age/head circumference.

Rationale/Points of Emphasis:

1. Landmarks are occipital protuberance, points just above each ear, and above eyebrows.

4. Accuracy is improved greatly when the accuplot* is used.

*Accuplots can be obtained from the local Ross Laboratories representative or by contacting the District Nutrition Director.

AVERAGE HEAD CIRCUMFERENCE

Age	Mean (Inches)	Mean (Cm)
Birth	13.8	35.0
3 months	15.9	40.5
6 months	17.0	43.4
12 months	18.3	46.6
18 months	19.0	47.9
2 years	19.2	48.9
3 years	19.6	49.9
4 years	19.8	50.5
5 years	20.0	50.8
6 years	20.2	50.9

TEMPERATURE, HEART RATE, RESPIRATORY RATE, BLOOD PRESSURE MEASUREMENTS & REFERRAL CRITERIA

TEMPERATURE - Not routine, done if indicated

PROCEDURE:

In the child under six, a satisfactory temperature can be obtained either rectally or in the axilla. The temperature should be recorded as it is taken (97° or 99°, for example). Do not add or subtract degrees before recording. In the case of axillary, the bulb must be held firmly in the axilla by holding the arm against the body for a full three minutes. The average normal axillary temperature is 2 degrees lower than rectal, or 97 degrees. A rectal temperature requires that the thermometer be well lubricated, inserted about one inch and held in place for the full 2-3 minutes by parent or attendant.

A child six years or older may have a temperature taken orally. An oral temperature is normally 98.6 degrees Fahrenheit or 1 degree less than rectal. The child must be able to hold the thermometer firmly between the lips with the bulb under the tongue for a full three minutes. The child should not have had anything to drink for 20 minutes prior to obtaining an oral temperature.

REFERRAL CRITERIA:

A. A fever or abnormally low temperature in an infant less than two months old is a medical emergency and requires immediate physician referral.

B. Elevated temperatures in older infants and children usually indicate infection and should be managed appropriately.

C. An indolent, low-grade fever in a child not acutely ill may indicate chronic infection, neoplastic or rheumatic disease. Any fever of undetermined origin needs medical referral.

HEART RATE

PROCEDURE:

A. Use radial pulse. It helps to assess peripheral circulation.

B. Count for 30 seconds; multiply by two; record in beats per minute.

C. Note rhythm and quality.

D. Normal rate decreases with age.

E. May be elevated with fever, crying or exercise.

NORMAL VALUES:

AGE	HEART RATE
One Month	120-150
One Year	100-140
2-6 Years	90-110
2-10 Years	85-100
Over 10 Years	79-90

REFERRAL CRITERIA:

A. If persistently high or low in an otherwise well infant, refer to physician.

B. High or low pulse in an acutely ill patient requires immediate medical attention.

C. Irregular rhythms require physician referral.

RESPIRATORY RATE

PROCEDURE:

A. Wait until child is no longer crying.

B. Observe child unclothed.

C. Do not let patient know you are counting his respiration.

D. Count for 30 seconds, multiply by two, record as respirations per minute.

E. May be elevated with fever, crying or exercise.

NORMAL VALUES:

AGE	RESPIRATORY RATE
One Month	30-50
One Year	20-40
2-6 Years	20-30
6-10 Years	18-25
Over 10 Years	16-23

REFERRAL CRITERIA:

Abnormally slow or rapid respirations, especially if labored, irregular or accompanied by signs of distress, indicate medical emergency. Assure airway and seek immediate medical attention.

BLOOD PRESSURE

PROCEDURE:

A. Performed on all children three years of age and older.

B. Explain to child what you're doing. Use words like "pressure" rather than blood pressure, and "arrow" rather than needle.

C. Use a cuff with a width which is 2/3 the length of arm. The bladder should completely encircle arm.

D. Meniscus of manometer should begin at zero and read at eye level.

E. While measuring, rate of fall should be 2-3 mm of Hg per heart beat.

F. Systolic: Appearance of sound.

G. Diastolic: Muffling of sound.

NORMAL VALUES:

Age in Years	90-95%	95-99%	≥99%
Children (3-5)	106/69 - 115/75	115/76 - 123/83	≥124/84
Children (6-9)	111/70 - 121/77	122/78 - 129/85	≥130/86
Children (10-12)	117/75 - 125/81	126/82 - 133/89	≥134/90
Adolescents (13-15)	124/80 - 135/85	136/86 - 143/91	≥144/92
Adolescents (16-18)	127/80 - 141/91	142/92 - 149/97	≥150/98

REFERRAL CRITERIA:

If on first measurement the BP is ≥99%, refer immediately.

If a BP reading is in the 90-99% at first measurement, have the patient return two additional times for measurements. Average these three measurements and if still 90-99%, refer. Measurements that are above the 90th percentile should be repeated during subsequent visits under circumstances in which apprehension and anxiety are minimized. Ideally, this would be on three visits. However, if there is a possibility that the patient will not return, you may consider repeating the blood pressure at the end of the first visit.

TIPS ON STICKS

--- Get all your equipment ready before starting

--- Do not show child the lancet until you are ready to stick him

--- Showing the child the glass capillary tubes before the procedure often allays much of the fear

--- Wear gloves for all sticks

Finger Sticks:

--- Hold finger firmly

--- Clean area with alcohol wipe

Dry with gauze or cotton. If doing finger stick for lead, scrub finger with alcohol for one (1) full minute.

--- Stick lateral border of non-index finger pad

--- Wipe away first drop of blood with dry wipe

--- Fill two capillary tubes for Hct; use a Sarstedt or BD Vacutainer tube for lead; one drop needed for Hemocue (Hgb)

--- Place large drop of blood on slide for EP. Mix specimen on slide until thoroughly oxygenated. Read immediately. See Lead Manual for detailed instructions.

Hemoglobin or Hematocrit

--- Done at 6 months of age or initial CH visit if later than 6 months.

--- Interim repeats as indicated or according to CH/WIC/EPSDT recommendations.

The following values are based on CDC Criteria for Anemia in Children:

NORMAL VALUES:

AGE	Hgb	Hct
<2 Years	≥11.1	≥34
2-<5 Years	≥11.3	≥35
5-<8 Years	≥11.5	≥35
8 to <12 Years	≥11.7	≥36
Female		
12 to <15 Years	≥11.9	≥35
15 to <18 Years	≥12.1	≥37
≥ 18	≥12.1	≥37

AGE	Hgb	Hct
Male		
12 to <15 Years	≥12.4	≥38
15 to <18 Years	≥12.7	≥39
≥ 18	≥13.7	≥42

Lead Screening

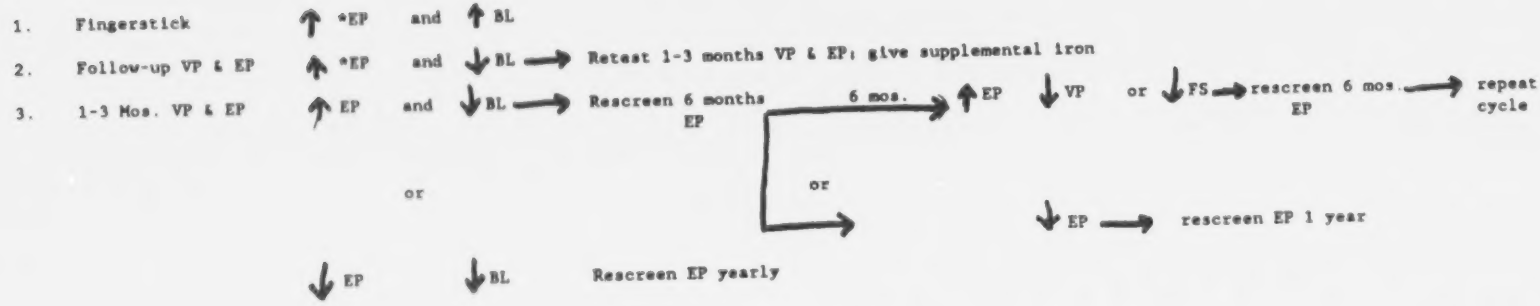
Children age 1 year to 6 years need to be screened yearly.

EP ≤34 Normal
EP ≥35 Abnormal - requires confirmatory blood lead which should be by venipuncture. If this is not possible, a finger stick can be done. See flow sheet on following page.

Pb ≤24 Normal
≥25 Abnormal and requires follow up. See Lead Manual.

FLOW CHART

PATIENTS WHO HAVE ELEVATED BLOOD LEADS (BL) BY INITIAL FINGERSTICK (FS)
BUT NOT BY VENIPUNCTURE (VP)


1. Fingerstick
↑ *EP and ↑ BL
2. Follow-up VP & EP
↑ *EP and ↓ BL → Retest 1-3 months VP & EP; give supplemental iron
3. 1-3 Mos. VP & EP
↑ EP and ↓ BL → Rescreen 6 months EP
6 mos.
↑ EP
↓ VP
or ↓ FS → rescreen 6 mos. EP → repeat cycle
or
or
↓ EP → rescreen EP 1 year
↓ EP ↓ BL Rescreen EP yearly

Patient who has had elevated blood leads by VP at some time and now has had two normal blood levels by VP will continue to be retested by VP and EP for lead every six months until consultant discharges.

*EP is the most sensitive indicator of iron deficiency. For this reason, these children should receive priority in iron therapy.

Collection of Blood Specimen for HIV Antibodies

Collection of Blood Specimen for Infant and Children/Adults When Venipuncture is Difficult.

1. Use the Hemoglobin Electrophoresis request form (DHEC 1339) and check HIV in test request area.

2. Clean puncture site with 70% alcohol and allow to dry.

3. Make puncture using a sterile lancet.

4. Wipe away the first drop of blood. When a second large drop of blood appears, touch the filter paper to the drop. Allow blood to saturate through each circle to the other side filling the circle. Never layer small drops on top of one another. Fill all four circles.

5. Dry all specimens at least 3 hours in a horizontal position at room temperature before placing in a bag. Specimens may be dried overnight if necessary. The specimens should be supported so no portion of the blood soaked area comes in contact with another surface. When dry, the spots will be a uniform dark brown color.

6. Place the completely dried specimen card in a ziplock specimen bag. Place only one specimen in a bag.

   Only EIA and Western blot tests can be done with dried blood spot specimens.

Testing and Follow-up of Children of HIV-Infected Mothers.

Any child whose mother has HIV infection should be HIV tested soon after birth. Informed parental/guardian consent is usually necessary for this. Almost all infants born to HIV-infected women will test HIV-antibody positive at birth. The antibody-positive infant should be considered infected, probably immune-deficient, and potentially infectious. About 30-50% of these infants are truly infected, and the rest are positive due to passive transfer of the mother's antibodies.

Infants seropositive at birth.

The earliest time for additional testing of an HIV-positive infant is at 4-6 months when passively transferred maternal antibodies will have begun to decline. Periodic (every 3-6 months) testing of the infant until 15-18 months of age, correlated with other HIV tests (such as the p 24 Antigen and T-Lymphocyte staging) is suggested to facilitate referral and treatment decisions.

By 15 to 18 months of age, HIV-positive infants not truly infected will lose their passively-transferred maternal HIV antibodies and seroreverter to antibody negative. Seroreversion during the first 18 months of life should be confirmed by a second negative HIV test in 3 months. A repeat serum sample for HIV retesting can be drawn upon learning of the seroreversion if immediate reassurance is required, but it should still be followed by another/the final HIV test 3 months later.

Infants seronegative at birth.

Very rarely, infants born to HIV-infected women will test negative at birth. This occurs primarily when the mother becomes infected late in pregnancy (but had not yet produced enough antibodies to passively transfer to the infant) with the infant becoming HIV infected but seroconverting to HIV-positive later. However, this can also occur if the infant is not infected (true negative) and also has no maternal antibodies. It is recommended that infants who are HIV-antibody negative at birth but born to HIV-infected women be retested at 6-8 weeks, 6 months, and 15 months, and also anytime possible HIV-related symptoms develop.

Symptomatic infants.

If an infant born to an HIV-infected woman develops any symptom suggestive of HIV-disease, HIV testing/retesting with p 24 Antigen, Beta-2-microglobulin, and Lymphocyte subset profile testing with CBC, as well as referral for medical evaluation and treatment decisions, is strongly recommended.

Procedure for adults and older children:

Follow venipuncture procedure in DHEC Nursing Procedures Manual and special instructions for completing the HIV serology request forms.

Collect blood in a red top tube (tube without anticoagulant). Put patient's name, DHEC number, Date of Birth (DOB), and date drawn on tube. Submit to lab with appropriate DHEC laboratory form. Send the specimen and lab slip in the two compartment ziplock bags. Be sure the specimen is in the ziplocked compartment and the lab slip is in the other.

THE PREMATURE INFANT

Pediatric primary care for the low birth weight premature infant is designed to promote and support normal growth and development through preventive practices such as immunizations, early diagnosis and treatment of disease, anticipation of age-appropriate behaviors and problems, and education of parents.

At one time an infant of less than 2500 grams (5 1/2 pounds) was considered premature but is now considered a low birth weight infant regardless of gestational age.

The lower limits of survival have generally been 24 weeks gestation or a birth weight of 500 grams (1 pound 1 1/2 ounces). The more immature the infant is the higher the mortality, the greater the problems in the immediate neonatal period, and the higher the chances of long term morbidity. However, with the improvements in neonatal intensive care, those infants who do survive have an excellent chance of a normal outcome. Telephone contact and home visits can be invaluable in aiding parents in caring for their "special" child. The assessment and follow-up of the premature infant should take into consideration several factors in addition to the care of the term infant.

1. **Feeding** - The premature infant in the first few weeks of life may need to be fed smaller amounts more frequently (i.e., 2-3 ounces every 2-3 hours). Since prematures sleep more, the smaller infant may need to be awakened to feed. The difficulty of smaller infants sucking regular nipples may cause fatigue and lead to inadequate intake. In this case, a "premature" nipple should be used. The small premature infant generally is placed on vitamins and mineral supplement per health districts guidelines/protocol.

   In determining when to start the low birth infant on foods other than formula or breast milk, it is important to follow the neuromuscular and developmental readiness for the solid foods. Also, it is highly recommended to keep these infants on breast milk or standard formula until twelve months of <u>corrected</u> age.

   All low birth infants should be referred to the nutritionist. A nutrition plan of care should be developed based on the nutrition care standard for low birth weight infants.

2. **Growth** - Growth which may be below the 5th percentile initially will either parallel the growth curve or may show "catch-up" growth depending on the genetic potential of the individual and the adequacy of nutrition. Length, weight, and head circumference would generally be expected to progress at similar rates.

3. **Anemia** - The premature infant is more likely to develop anemia at an earlier age. The hemoglobin (or hematocrit) can fall as low as 8 gm/dl (or 25%) at approximately two months of age for the infant with a birth weight between 1000 and 1500 grams. Those infants whose hgb/hct fall below this value should be referred for further evaluation.

4. **Development** - Correction must always be made for gestational age when using the Denver II for development screening. Premature infants need to be followed for problems in development.

5. **Vision** - Premature infants are at a higher risk for vision problems such as strabismus and retrolental fibroplasia. Guidelines for ophthalmologic screening of the premature include:

   a. Birth weight less than 1500 grams.
   b. Gestational age less than 32 weeks.
   c. Oxygen therapy more than four hours.
   d. Mechanical ventilation.
   e. In utero transfusion.
   f. Exchange transfusion in premature infants.

   Intermittent strabismus is frequent during the first six months; persistent deviations are reason to refer at any age.

6. **Problems in Parental Bonding** - Premature infants, particularly those with severe neonatal problems or prolonged hospitalization, are at risk for interference with the normal bonding process. Assess for difficulties in bonding and provide supportive intervention.

7. **Immunization** - Immunizations of the premature infant can be started at the usual chronological age of 6 to 8 weeks. There is no specific weight criteria for beginning immunizations provided that the infant was shown a steady increase in weight. The general health status of the infant and complications in the neonatal period that relate to the standard contraindications to immunizations (i.e., seizures, neurological conditions, etc.) must be taken into account. If any question exists as to the appropriateness of beginning immunizations in a premature infant, the immunizations should be delayed until physician's approval is obtained.

8. **Hearing** - Premature infants are at high risk for hearing loss either because of factors responsible for the premature birth or from events that follow the birth. Infants who meet the criteria for neonatal hearing screening are frequently tested before they are discharged home. Infants who fail an initial hearing screening should be retested. All infants should be tested during routine pediatric follow-up and referred appropriately for any abnormal findings.

9. **Circumcision** -There is no clear cut medical justification for routine circumcision of newborn infants. It is stressed that parents be taught the importance of applying good hygiene practices to the genital area. The decision regarding circumcision should be made by the parents.

10. **Sleep Patterns** - Premature infants have difficulty establishing regular sleep/wake patterns. Superimposed is the parent's concern and protectiveness. Helping the parents recognize deep sleep (quiet state with regular breathing) and helping them feel comfortable about not waking the infant will result in a restful and relaxed infant who will, with time, achieve the skill of sleeping longer.

11. **Crying** - It is not unusual for parents to feel uncomfortable about letting the infant cry. Recognizing the infant's capabilities to console him or herself and finding ways to help this behavior can ease difficulties in managing fussing and crying.

12. **Schedule of Visits**- Frequent visits ranging from weekly to biweekly to monthly may be necessary to monitor growth, weight gain and parental and infant adjustment and to review with parents questions about the perinatal events. Once the infant demonstrates stability routine well-baby visits will be followed.

Resources:

Taeusch, H. William, MD, and Yogman, Michael W., MD, Follow-up Management of the High-Risk Infant, Little, Brown and Company 1987.

THE NEWBORN INFANT - COMMON PROBLEMS AND CONCERNS

HISTORY

The initial history is aimed at gathering information particularly in regard to factors which may indicate potential problem areas for the infant. Pregnancy and delivery history may indicate risk factors for an increased perinatal mortality and morbidity. If a history of abnormality or problems in the perinatal period is obtained, the information regarding the hospital course of the infant should be obtained by request of information from the hospital. This is particularly important if the mother is uncertain of the exact nature of the problems or multiple complications existed. Also, note if a follow-up appointment was given to the patient and if such appointments are kept.

The remainder of the history focuses on the status of the infant after leaving the hospital. It should include illnesses, hospitalizations, physician visits, feeding and nutrition, general behavior, sleep patterns, bowel patterns, development and problems noted by the parents or family. The mother should be given opportunity to ask questions about any problems or concerns she may have.

PHYSICAL ASSESSMENT

Growth - Deviations in the growth pattern in infants may be the first indication of a medical or nutritional problem. As a general rule, full term infants will lose up to 10% of their birth weight in the first three days of life. Birth weight is usually regained by 10 days of age in the bottle fed infant. Although the breast fed infant may initially gain weight more slowly, breast fed infants should regain birth weight at least by two weeks. For the first five months of life, the infant generally averages a gain of 20 grams (2/3's of an ounce) a day. The average length of the infant at birth is 20 inches. The normal full term infant grows around 10 inches in the first year. The average head circumference at birth is 34-35 cms. The head circumference increases to an average of 42 to 44 cms. by 6 months of age and 46 to 47 cms. by 1 year of age.

Plotting the measurements on the appropriate growth chart for age and sex gives a visual picture of the infant's growth progression. Any infant whose weight gain appears inadequate needs to be assessed for a) improper or inadequate feeding and b) systemic disease that interferes with adequate growth. Infants with poor weight gain need careful assessment and follow-up with medical referral for severe cases or situations which do not resolve promptly.

Gestational Age Assessment - Infants can be classified as preterm (less than 38 weeks gestation), term (38-42 weeks gestation) and post term (greater than 42 weeks gestation). They can also be classified as small for gestational age (SGA), appropriate for gestational age (AGA) and large for gestational age (LGA) after being plotted on a growth chart at the time of birth. The post term infant is usually very alert, bright eyed, well coordinated with

excellent muscle tone, thick skin, large breasts and luxuriant hair. Dysmature infants or one who has suffered placental insufficiency may be SGA and have cracked, peeling skin, decreased subcutaneous tissue and hypotonia or tremors due to asphyxia.

Physical Examination - Observation is a most important aspect of neonatal physical examination. Example: Skin color, asymmetrical motor activity, unusual lumps, bumps, etc. Observation by ear for changes in cry patterns, pitch and tone.

Spend as much time as necessary prior to palpation, percussion or auscultation looking at the infant. Note: Movement, breathing patterns, response to extraneous sounds. Look at his fingers and toes, face, ears, lower back, abdomen and chest. Note rashes or skin peeling. Is the baby comfortable? Healthy-looking? Observe the infant interacting with his mother (or other care giver) in order to gain even more information about neurological behavior, feeding ability, autonomic nervous system and neurological control.

Develop a system for examining the infant. Disturb the infant as little as possible, particularly at the start of the exam.

Example:
(1) Observe respiratory rate and ease of respiration before disturbing the infant. Note color at rest.
(2) Check apical pulse.
(3) Make an orderly progression, head to toe, checking systems, organs and reflexes.

During the course of examination, you should concentrate on remembering only those findings that are abnormal. Carefully record your observations in writing. A dynamic record provides invaluable information that has both immediate and long term significance.

TIPS FOR NEWBORN CARE

A. **Bathing:**

1. It is not necessary to give the baby a bath every day, especially in the winter. Give the baby a sponge bath until the cord falls off.

2. Don't put any oil, vaseline, lotion or powder on baby's skin. Try to use a mild soap like Dove or Tone.

B. **Elimination:**

1. Babies should pass urine within 24 hours after birth and have a bowel movement within 24-48 hours after birth.

   (a) Stools of breastfed infants are usually frequent, loose pale yellow, curdy with water. They may be explosive.

   (b) Stools of formula fed infants occur 2-4 times daily, vary in color and are soft.

   (c) Urine: Stream should be strong, color pale yellow, volume adequate to wet diaper; frequency 8-12 times daily.

2. Sometimes you may find a pink stain in the baby's diaper. Don't worry - this is normal and is called passage of uric acid crystals.

3. Girl babies sometimes have a white mucousy vaginal discharge and sometimes a small amount of vaginal bleeding. This is normal.

4. Straining: Newborns often strain during bowel movements. This is a concern to mothers who often equate this with constipation. Evaluate the bowel pattern and consistency of stool to determine if the infant is constipated. If the infant is not constipated, reassure the mother that a certain amount of straining is normal in newborns, as the sphincter is often tight. If the mother has a rectal thermometer and is comfortable taking a rectal temperature, putting the thermometer in as if taking a temperature can often help the infant more easily pass stool as the sphincter is relaxed some.

   Another helpful method is to place the infant on his back and flex the hips and knees. This too opens the anal sphincter and aids in the passage of stool.

C. **Breathing:**

Breathing in the new baby may not be smooth. He/she may breathe fast for a short time and then stop for a few seconds before breathing again. This is okay as long as the baby doesn't turn blue or stop breathing for more than 20 seconds.

D. **Normal Infant Behavior:**

Sounds that are often heard are snorts, sneezes, and sometimes a cough. These are normal. Hiccups occur in almost every baby and should not alarm the caregiver. Thumb and finger sucking and the startle reflex are normal.

E. **Spitting Up:** (Gagging or Blue Spells)

If the baby is spitting up mucus and/or milk and seems to be gagging or choking on it, turn the baby on its side and suction the mouth and nose with the bulb syringe. During such a spell, a baby sometimes turns blue for a few seconds. This is okay, but if he/she has blue spells that are longer or are not happening with feeding, this is abnormal. Remember a little spitting up of formula is normal.

F. **Cord Care:**

1. Keep the baby's cord clean and dry until it falls off (1-2 weeks). Keep it clean by rubbing it with alcohol (on a cotton ball) every time you change the diaper. Keep baby's diaper turned down away from the cord. Do not put baby in water until cord falls off.

2. The signs of infection to look for are: redness around the skin, drainage and foul smell from the cord area.

G. **Crying:**

A baby's crying is normal. Usually newborn babies have times when they cry a lot for no reason. This most often happens in the afternoon or early night. When the baby cries, have the mother consider the following:

1. Is he/she hungry?

2. Is there a pin or something hurting him/her?

3. Is he/she wet or dirty?

4. Does he/she need loving?

Babies need to cry as their way of talking - so always check for the above to see if he/she is trying to tell you something.

Hunger Assessment:

1. Not all active, fussy periods indicate hunger. Hunger occurs approximately 2-3 hours after breast feeding, 3-4 hours after feeding for bottle fed infants.

2. Signs of hunger: Sucking of lips, hands, crying with inability to comfort self or to be comforted.

3. Colic may be due to feeding techniques, sensitivity or allergy to formula or parental anxiety.

Comfort Measures for a Fussy Baby:

1. Reinforce that holding does not "spoil" infant.

2. Offer pacifier, plain water.

3. Try swaddling, bundling the baby. The infant may like this for the first few weeks.

4. Babies like motion. Walk with the baby, use a cradle, snuggle carrier, stroller, go for a ride in the car (use car seat).

5. Some infants are soothed by a bath.

6. Try massaging, stroking the infant.

7. Change positions frequently when infant is awake. Use basket or small crib; keep in area of family activity. Provide for quiet, unstimulating times, also.

H. **Jaundice:**

This is common and usually happens when baby is 3-4 days old. If you notice that the baby's skin or the whites of the eyes look yellow or orange, refer the patient to the doctor.

I. **Sibling Rivalry:**

1. Review needs of sibling for undivided attention.

2. Suggest ways to integrate sibling into infant care activities to reduce feelings of jealousy.

3. Be alert to physical aggressiveness by older sibling against infant.

J. **Sleep Pattern:**

The amount of time an infant sleeps and the pattern of sleep will vary from baby to baby. The average sleep times by age are as follows:

Birth to 3 Months - 15-18 hours per day.
Three to Twelve Months - gradual decrease - ability to stay awake for 6 to 8 hour periods.
One Year - average total sleep of 14 to 15 hours per day.

K. **Circumcision:**

There is no clear cut medical justification for routine circumcision of newborn infants. Genital hygiene practices should be taught to parents.

L. The baby may have cold hands and feet. If the baby's arms, legs, or body feel warm and are pink, this is normal.

GUIDE TO PHYSICAL APPRAISAL

The following is a guide to physical appraisal. Expected findings and implications for health care are listed to help in the evaluation of the patient and in making the decision to refer.

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
General Survey		
State of health including signs of distress, posture, gait, dress, grooming, hygiene, manner, mood, relationship to the environment.	Symmetry of shape and movement, state of activity appropriate to chronological age. Comfort in surroundings and with caretaker. Appearance neat, no apparent odor (take into consideration variances in the individual child's activity level and developmental patterns).	Acute or chronic illness, sweating, anxious facial expression, fidgety movements, cold moist palms, pallor, cyanosis, jaundice, slowed activity, tremor, uncooperativeness, hostility, anger, elation, tearfulness.

SKIN

Definitions:

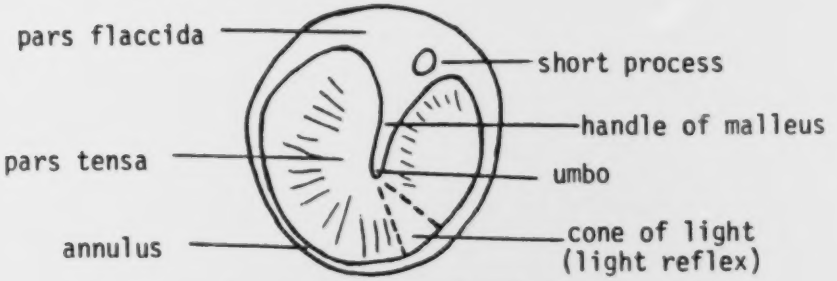
1. Macule - flat, small - no larger than 1 cm - different in color from the surrounding skin.
2. Papule - elevated, sharply circumscribed, small (1 cm or less) and colored.
3. Vesicle (blister) small - under 1 cm sharply defined filled with fluid.
4. Bullae large - any vesicle over 1 cm.
5. Pustule - elevated, sharply circumscribed, filled with pus less than 1 cm.
6. Erosion - loss of the superficial portions of the epidermis.
7. Ulcers - loss of epidermis, dermis, and possibly the subcutaneous layers.
8. Scales - dried fragments of the sloughed dead epidermis.

Sweating: In some babies sweating may begin after 4-5 days of life - definitely should begin after 1 month of life.

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Skin Inspection for color, birthmarks, moles, scars, bruises, Mongolian spots on infant's buttocks; palpate for nodules, skin turgor and state of hydration. Inspect hair, nails.	Skin, appropriate color, warm to touch, smooth, unbroken integument, no scars, lesions or bruises. Skin elastic when pinched and released. Hair - normal distribution and consistency. Nails - no deformities, nail beds pink, no clubbing.	Specific and non-specific rashes, open lesions, mole with change in size or shape, multiple bruises or scars, impetigo, insect bites. Dehydration as evidenced by: dryness, parched tongue, sunken fontanel, irritability, lethargy. Jaundice/yellow sclerae.

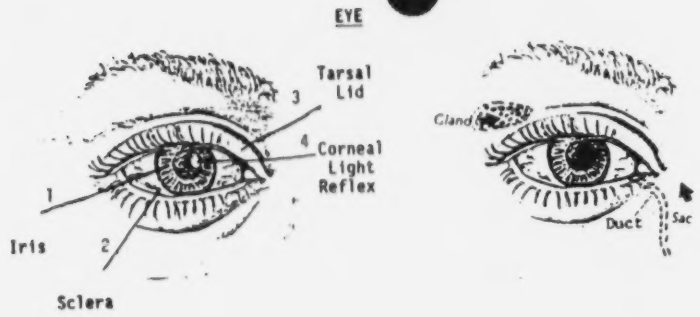
APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Head		
Measure circumference to three years and when unusual increase in size suspected.	Approximates chest size in infancy. Appears symmetrical.	>95 percentile. or <5th percentile on growth grid or unusual pattern of growth for individual child. or >2 standard deviation between H.C. % and Ht. %
Measure fontanels.	Anterior 4--6 cm at birth, close by 18 mos. of age. Posterior .5-1 cm at birth, closes by 4 mos. of age. Fontanels may bulge with crying, pulse palpable in anterior.	Sunken with dehydration, bulging with increased intracranial pressure. Early or late closure.
Scalp		
Palpate head for nodes and/or swelling, examine symmetry, appraise hair line.	Infant: cephalhematoma may persist to 3 mos. of age. Normocephalic, no lesions, itching, lice, swelling; note texture and condition of hair, even distribution.	Non-movable, painful nodes, or dramatic growth in node size. Lice, itching, infection, alopecia, seborrhea.
Face		
Appraise facial expression, alertness, interest, emotions, response to others.		
Note equality of palpebral fissures.	Symmetry of expression, interest, alertness; responses appropriate for age.	Abnormal facies (i.e.: injury, Downs Syndrome, etc.)
Note relationship of ears to outer canthus of eye.	Even on horizontal plane.	Low set or abnormal angle on head.
Percuss facial sinuses of older child (6-18).	Resonant, painless.	Nonresonant, painful.
Evaluate condition of skin on face.	Milia on nose and forehead to 6 weeks of age--normal.	Acne, strawberry hemangioma, impetigo, eczema, seborrhea, port wine stain.

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Ears		
Inspect outer ear, examine ear canal and tympanic membrane with otoscope and pneumatic adaptor.	External ear: adequate position, no discharge, pain. Canal: no discharge, small to moderate amount wax; no lesions or foreign bodies. Tympanic membrane; gray opalescent, light cone present, bony landmarks, appropriate movement.	Malformation or low placement of ear, wax obstructing canal, odorous discharge, lesions, foreign body, redness, induration of membrane, absence of light reflex, and/or bony landmarks, bulging or retracted drum, abnormal movement of TM's.



RIGHT DRUM

Hearing		
	Audiometry or hear kits normal limits.	Failure at any frequency in either ear when rescreened (see procedures in Hearing Section).
Pharynx		
Tonsillar pillars Uvula	Clear - not inflamed, enlarged, or scarred. Central location.	Pus, excessive mucus (i.e., tonsillitis), tonsils injected, enlarged, scarred, exudate. Bifid or absent uvula.
Larynx		
Voice or cry noted for hoarseness or stridor	Normal voice, cry sounds.	Sharp, whining cry, low raucous cry, a growl, stridor present.



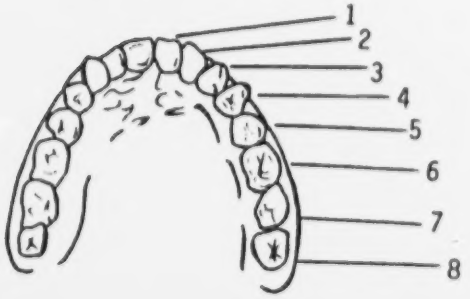
Tears may begin about 1 month of age. Not usually before. Naso lacrimal duct opens by 2-3 months of age.

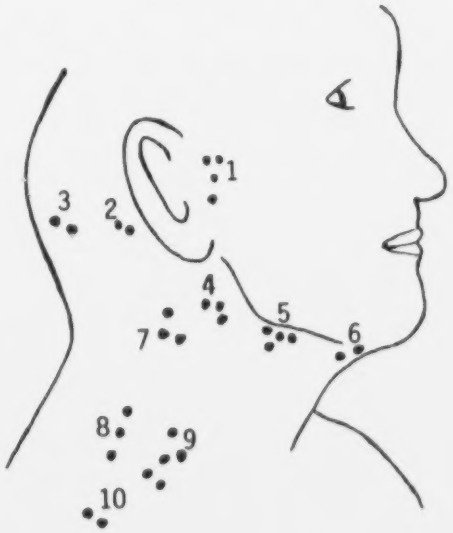
One of the earliest signs of intact vision is the infant's regard for the mother's face during feeding - so ask "Does your baby ever look at you during feeding?"

1. Test of Vision - Eye tracking - infants; E-Chart or Snellen Chart, Titmus Machine older children

2. Observation - Blinking. Note for large or protruding eyes or a bulging eye.

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Eyes		
Observe for symmetry, placement, color in sclera, edema, foreign body. Abnormalities in eyelids, pupil, conjunctivae. Lacrimal ducts. EOM's. Test acuity, pupillary light reflex, red reflex, cover test, Hirschberg test. (See Vision section)	Symmetry of eyes and related structures - no en- or exophthalmos. Conjunctivae, cornea, and sclera clear. PERRLA (pupils equal, round, reactive to light and accommodation). EOM's (extraocular movements) equal.	Intermittent crossing of one or both eyes before 3-6 mos. is normal. Any fixed deviation at any age should be referred. Foreign body, edema, discharge, inability to maintain visual contact with moving finger, excessive tearing, asymmetrical blink, inability to converge, opacity of lens, ptosis, pupillary reaction delayed, acuity test 20/30 or worse if 8 or older, 20/40 or worse if ages 5-8, 20/50 or worse if age 4-5; findings suggestive of nystagmus, strabismus, amblyopia, white pupillary reflex (leukocoria).
Fundoscopic exam.	Arteries - light red.	Opacity.

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Nose		
Inspect nares, determine patency of nostrils, inspect for lesions, internal inspection, using otoscope with large speculum.	Nares patent, membranes visualized, pink turbinates visualized bilaterally. Septum in midline with no lesion or perforations. Identify color.	On flow obstruction, foreign body, mucosa pale-boggy, drainage (purulent or clear).
Mouth and Throat		
Inspect oral cavity, repair of teeth and gums.	**Deciduous Teeth** 1. central incisor 2. lateral incisor 3. cuspid 4. 1st baby molar 5. 2nd baby molar	Decayed or missing teeth, pus, bleeding, swelling, discoloration, pigmented spots, vascular spots on gingiva, tumors. Cleft palate or uvula.
See Section on dental care for further information.	**Permanent Teeth**  1. middle incisor 2. lateral incisor' 3. canine (cuspid) 4. bicuspid 5. bicuspid 6. 6 yr. molar 7. 12 yr. molar 8. wisdom tooth	
Tongue		
Size, shape, surface.	Normal - symmetrical Color - pink Well-papillated (geographic tongue - normal)	Lesions, immobility, fassiculations.

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Neck		
Check range of motion. Palpate trachea and thyroid.	Neck supple--full R.O.M.	Immobility, enlargement
Lymph Nodes		
Palpate lymph nodes in following sequence. 1. pre-auricular 2. posterior auricular 3. occipital 4. tonsillar 5. submandibular 6. submental 7. superficial cervical 8. posterior cervical chain 9. deep cervical chain 10. supraclavicular (sentinel)		
In addition - palpate axillary, epitrochlear, inguinal.	No lymphadenopathy.	Matted nodes, epitrochlear node. Enlarged size, immobility, heat tenderness. Presence of sentinel node.

CHEST

1st 2 years of life the chest circumference is about equal to head circumference, or the chest circumference may be slightly < head circumference.
After 2 years age, chest circumference > head circumference.

Shape:

A Round chest after age 6 years suggests pulmonary disease.

Funnel Shape: Pectus excavatum.

Pigeon Breast: Pectus carinatum.

Rachitic Rosary: An inflammation of the costochondral junction - causing swelling of the costochondral junction - that resemble the beads on a rosary.

Harrison's Groove: A depression in the region of the 8th-10th ribs, with flaring of the bottom of the rib cage.

Expansion of the Chest:

Abdominal motion - present up to age 6 or 7 years.

Thoracic motion - about 6 or 7 years and thereafter.

Bulging or Asymmetry of Chest Wall:

Precordial bulge: Heart Disease; Pneumothorax; Chronic localized chest disease

Asymmetry: Lung tumor; Congenital absence of chest muscles.

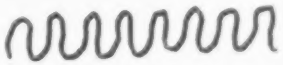
Scoliosis - scoliosis is most common cause.

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Chest		
Palpate axillary nodes. Inspect nipples and breast tissue.	Nodes not palpable. Symmetrical, no discharge, enlargement. Puberty: Stage 1 - 5 (Tanner's Stages of Sexual Maturity) See Tanner Scale for reference.	Asymmetrical, extra nipples, discharge, pain, abnormal enlargement, tenderness, nodules, cysts, redness.

Review of Types of Respiration

Normal:

Tachypnea:

Hyperpnea: 

Cheyne - Stokes:

Auscultation

High frequencies best heard with diaphragm.

Low frequencies best heard with bell.

Vesicular Breath Sounds

I > E
5 : 2

Louder, longer, higher - pitched inspiration and a shorter, softer, and lower pitched expiration. The ratio of the length of Insp. to Exp. is about 5:2.

Bronchial/Tubular: Have a shorter insp. phase and a longer expiratory phase. There is a pause between inspiration and expiration.

I < E

Bronchi Vesicular: A combination of both bronchial and vesicular breath sounds. Inspiration is louder and higher in pitch than vesicular breath sounds.

Inspiration and expiration are equal in quality, intensity, pitch, and duration.

Rales: Discrete abnormal sounds usually classified as fine, medium, or coarse--best heard during forced respiration, primarily at the end of inspiration.

Rhonchi: Loud gurgling noises transmitted from secretions in the pharynx. Lower pitched, resonant or musical rhonchi originate in the large air passages.

Wheeze: Continuous sound produced by airflow across a narrow passage - from secretions, edema, spasm.

Symptoms compatible with foreign body

Acute

A. Choking
B. Cyanosis
C. Vomiting
D. Wheezing
E. Cough
F. Hemoptysis
G. Gagging

After the acute symptoms subside - the child goes through a silent phase - then secondary symptoms develop.

Secondary

A. Dysphagia
B. Drooling
C. Vomiting
D. Appetite
E. Poor wt. gain or wt. loss

HEART

Certain basic information must be part of every examination.

1. Heart rate (brachial or apical rate)
2. Rhythm
3. Murmurs
4. Thrills
5. Femoral pulses
6. BP when indicated

"Alert" signs in the history

Maternal rubella

A sibling with congenital heart disease

Other anomalies present in patient

A recent viral infection (myocarditis)

Hx of joint pains

*Hx of fainting <u>during</u> exercise

Bradycardia usually means a rate <100 in infants < 60 children

Bradycardia may be seen in heart block, septal defects, and digitalis poisoning, and in use of beta blocker, i.e., enderal (propranolol)

In young teenagers sinus bradycardia is frequently seen - especially in well trained athletes, i.e., soccer players

Sinus arrythmia due to vagal responses of the S.A. node. In sinus arrythmia, the heart rate varies cyclically. Usually speeding up with inspiration and slowing with expiration. Inspire rate ↑; expire rate ↓.

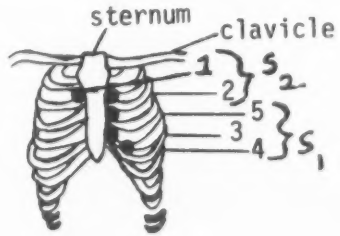
APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
PMI (Point of Maximal Impulse)	a) infant to 2 yrs., difficult to locate b) 2-7 yrs., 4th intercostal space (ICS) to left of mid-clavicular line (MCL) c) above 7 years, 5th ICS at MCL	PMI in abnormal location
Palpate for thrills	No palpable thrills	Thrill

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Inspect chest for bulging, enlargement, general inspection for edema, cyanosis clubbing of fingers, prominence of veins, Compare values obtained of carotid, femoral, and pedal pulses. - carotid or apical - older child - brachial or apical - infant to young child	No cyanosis, clubbing, no distention of neck veins Carotid, brachial, apical, femoral, pedal pulses present, full and equal	Cyanosis, bulging chest, clubbing of fingers, predominant veins, abnormal pulsations, brachial, apical, radial, femoral, pedal pulses absent, abnormal, not equal

Listen in order in the following locations:

1. Aortic area (2nd right interspace close to the sternum).
2. Pulmonic area (2nd left interspace close to the sternum).
3. Third left interspace close to the sternum (sometimes called Erb's point) where murmurs of both aortic and pulmonic origin may often be heard.
4. Tricuspid area (5th left interspace close to the sternum).
5. Mitral (apical) area (5th left interspace just medial to the midclavicular line).

Auscultation Listening Areas



1. aortic
2. pulmonic valve
3. tricuspid valve
4. mitral valve
5. left sternal border

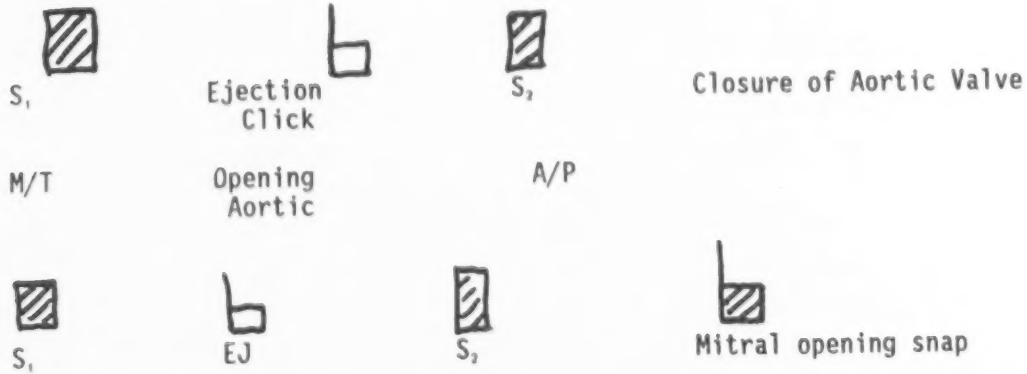
Listen for rate and rhythm
Listen for murmurs

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Listen for rate and rhythm Listen for murmurs	Regular rhythm, no extra beats No murmurs	Abnormal cardiac sounds-- murmurs, transmitted murmurs, septal defects, gallop rhythm, venus hums, friction rub, decreased or absent pulmonary second sound, clicks, snaps
Quality of sounds S_1 = M + T closure S_2 = A + P closure	Localize any abnormal sounds S_2 is normally split (intermittant)	Thrills Fixed split S_2 Any split S_1

S_1 - closure of mitral valve

S_1 - Ejection click - opening of aortic valve
not usually heard - this is an abnormal sound

Mitral



1st heart sound - closure Mitral Valve
2nd heart sound - closure of Aortic Valve

In Expiration S_1 and S_2 are not split - heard as first heart sound and second heart sound.

On Inspiration S_2 normally splits.

This in a normal physiological split.

Inspiration: S_2 splits

Expiration: S_2 one sound

Three types of innocent or normal murmurs in infants and children make up more than 90% of the total group. These are vibratory murmur, pulmonary ejection and venous hum.

Vibratory Murmur

Heard over the precordium. Most frequently between 2 and 7 years of age.

The vibratory murmur is well heard in the 3rd and 4th ICS on the left near the sternum. But it is frequently more prominent between the apex and the lower left sternal border. Transmission beyond the left cardiac border is RARE. This murmur is early to mid systolic in time. It is a low pitched, musical murmur, which has a groaning quality. Low to medium intensity, usually decreases when the patient assumes an upright position, may vary with respiration, and generally increases with exercise. Best heard with the bell.

Pulmonary Ejection Murmur

Most prominent in the 2nd and 3rd ICS parasternally. It is transmitted toward the xyphoid and cardiac apex to a limited extent. Always confined to early and mid systole. The murmur may have a soft blowing quality. Its prominence is increased by exercise and when patient is in the supine position.

Pulmonary ejection murmurs are also heard in patients with ASD's (atrial septal defects) or anomalies of pulmonary venous return. It is impossible to always be sure about the differentiation of these murmurs. Pathologic pulmonary ejection murmurs are more apt to be associated with wide-fixed splitting of the second heart sound.

Venous Hum

Best heard over the right side of the neck and it is transmitted to the 2nd right ICS. The hum has its highest intensity during the period of highest velocity flow, i.e., ventricular diastole. It is a variable, usually continuous murmur which is low to medium in pitch. The typical hum is evident only with the patient upright. The murmur will disappear if the veins upstream from the stethoscope are occluded.

The characteristics of innocent or normal murmur can be summarized as follows:

Except for the venous hum, innocent murmurs are systolic in time, not associated with thrills, often groaning in quality, poorly transmitted, and associated with heart sounds of normal intensity. These murmurs often change in intensity according to the position of the patient and from one examination to the next.

ABDOMEN

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Inspect shape	"Pot-belly" appearance normal until early school age	Distention
Note respiration contour	Usually abdominal until 6-7 years, symmetrical contour	Abdominal wall (age 0-7) fails to move with respiration, abdominal breathing only in older child
Evaluate rectus muscle	No umbilical hernia	Hernia - midline ventricle or umbilical - past age 4-5 unless strangulation occurs before that time
Auscultate for peristalsis (prior to palpation)	Normal peristalsis of 10-30 seconds	Absent peristalsis

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Percussion	Normal tympany; span of dullness of organs - normal	Distended abdomen, absent tympany
Palpation of:		
1. Quadrants of abdomen	Soft and non-tender, no palpable masses Spleen - non-palpable Kidneys - may be palpable in relaxed infant Liver - tip may be palpable 1-2 cm.	Tenderness with or without rebound, mass splenomegaly, hepatomegaly Kidneys tender, enlarged
2. Inguinal and femoral areas for hernias, pulses		Hernia (reducible; non-reducible)

GENITOURINARY SYSTEM

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Genitalia		
Males - penis, testes	See Tanner's Stages of Sexual Maturity. Circumcised or uncircumcised with foreskin retractable, testes descended bilaterally Uncircumcised male - foreskin should be freely retractable by age 3 years. If cannot be retracted by age 3 years, is termed phimotic	Non-circumcised with foreskin not retractable phimosis, undescended testicles, hydrocele, balanitis Undescended testicles - refer as soon as possible if cannot be brought into scrotal sack regardless of age Paraphimosis - foreskin is retracted and caught behind the glans - refer as emergency

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Check urethra, location of meatus	No discharge	Refer any infection at once - balanitis Hypospadias, tenderness, enlarge penis, swelling
Cremasteric reflex (stroke thigh)	Testes rise with stroking, normal reflex any age	Absent cremasteric reflex
Lymph nodes	No enlargement, no pain	Enlarged lymph nodes, pain
Females - inspect labia majora and minora, urethral meatus, pubic hair, palpate lymph nodes	No discharge; symmetry of labia; urethral meatus and vaginal orifice visible; stage of sexual maturity See Tanner Scale	Cysts, discharge, foreign bodies, adhesions of labial mucosa, enlarged clitoris, anatomic deviation
<u>Anus, Rectum</u>		
Examine buttocks, pilonidal region, anus, anal skin reflex and sphincter tone	Firm tissue, no masses, no pilonidal dimple or rectal tags, polyps, hemorrhoids, diaper rash, fissure, no evidence of excoriation, no pinworms, normal tone and anal twitch	Fissure, masses, meningocele, pilonidal dimple, perineal abscess, mucosal tags, rectal polyps; hemorrhoids, pinworms, diaper rash, absent anal skin reflex, abnormal sphincter tone

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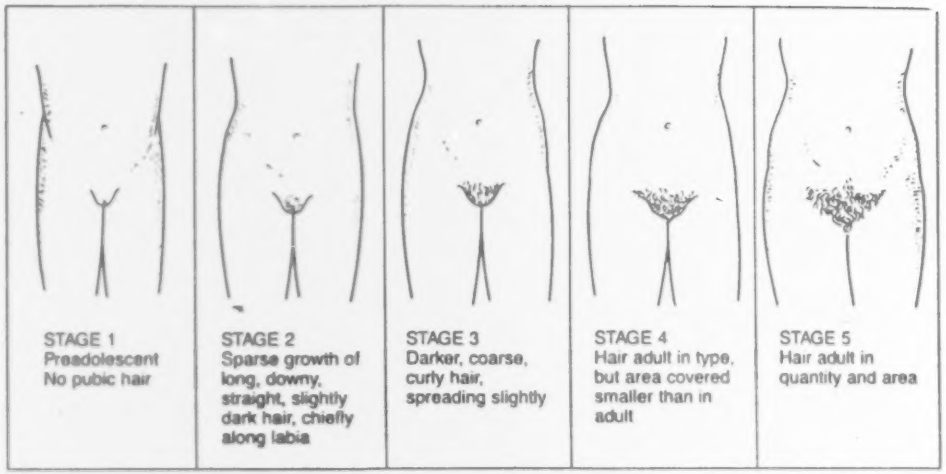
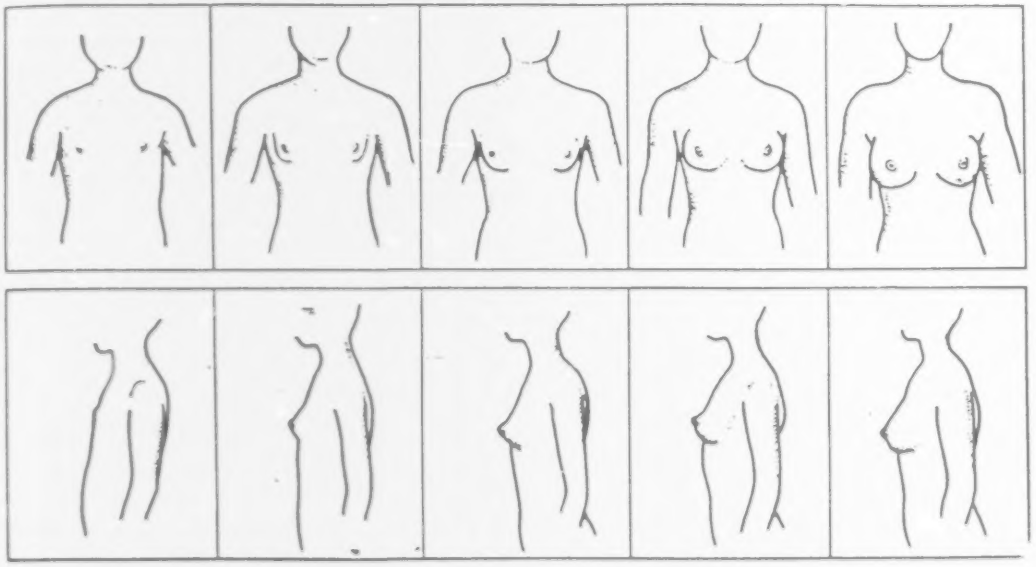
TANNER'S STAGES OF SEXUAL MATURITY

Classification of sex maturity stages in girls

Stage	Pubic Hair
1	Preadolescent
2	Sparse, lightly pigmented, straight, medial border of labia
3	Darker, beginning to curl, increase amount
4	Coarse, curly, abundant but amount less than in adult
5	Adult feminine triangle, spread to medial surface of thighs


STAGE 1
Preadolescent
No pubic hair
STAGE 2
Sparse growth of long, downy, straight, slightly dark hair, chiefly along labia
STAGE 3
Darker, coarse, curly hair, spreading slightly
STAGE 4
Hair adult in type, but area covered smaller than in adult
STAGE 5
Hair adult in quantity and area

	Breasts
1	Preadolescent
2	Breast and papilla elevated as small mound, areola diameter increased
3	Breast and areola enlarged, no contour separation
4	Areola and papilla form secondary mound
5	Mature; nipple projects, areola part of general breast contour



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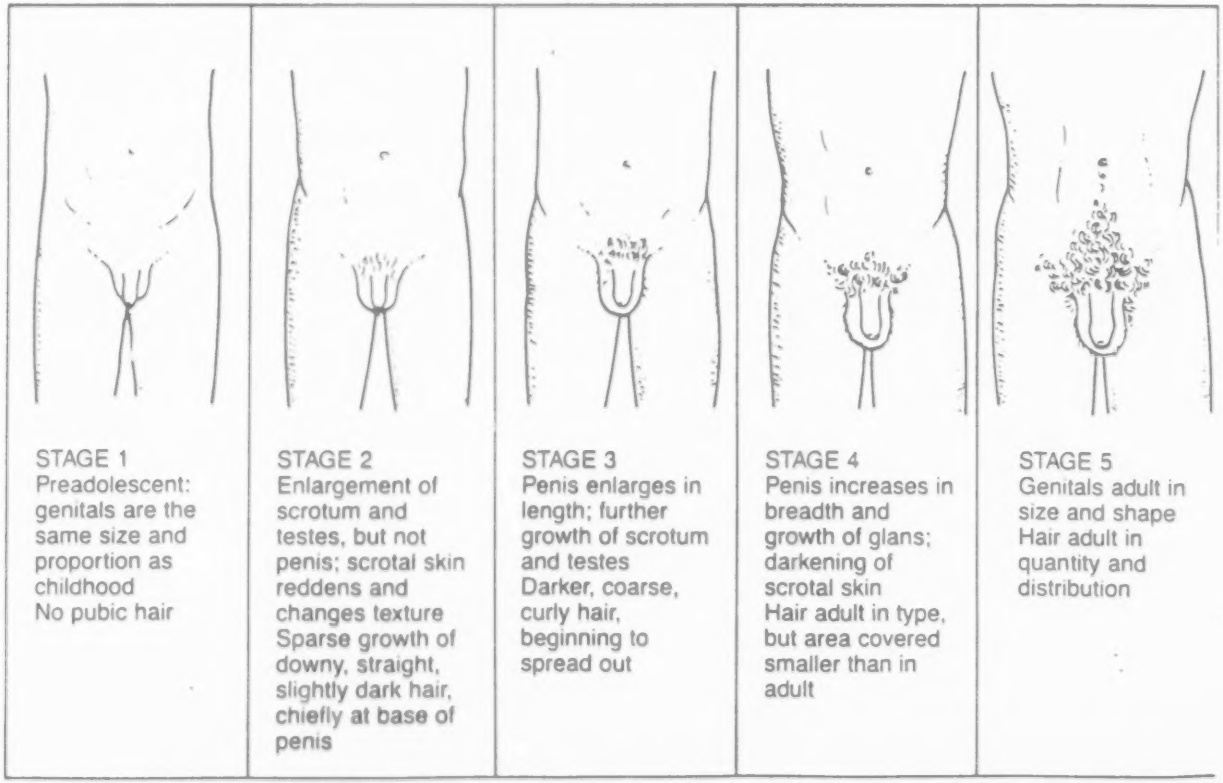
Classification of genitalia maturity stages in boys

Stage	Pubic Hair	Penis	Testes
1	None	Preadolescent	
2	Slight, long, slightly pigmented	Slight enlargement	Enlarged scrotum, pink, texture altered
3	Darker, starts to curl, small amount	Penis larger	Larger
4	Resembles adult type, but less in quantity, coarse, curly	Larger, glans and breadth increase in size	Larger, scrotum dark
5	Adult distribution spread to medial surface of thighs	Adult	Adult


STAGE 1
Preadolescent: genitals are the same size and proportion as childhood
No pubic hair
STAGE 2
Enlargement of scrotum and testes, but not penis; scrotal skin reddens and changes texture
Sparse growth of downy, straight, slightly dark hair, chiefly at base of penis
STAGE 3
Penis enlarges in length; further growth of scrotum and testes
Darker, coarse, curly hair, beginning to spread out
STAGE 4
Penis increases in breadth and growth of glans; darkening of scrotal skin
Hair adult in type, but area covered smaller than in adult
STAGE 5
Genitals adult in size and shape
Hair adult in quantity and distribution

Maturational stages of male genital development

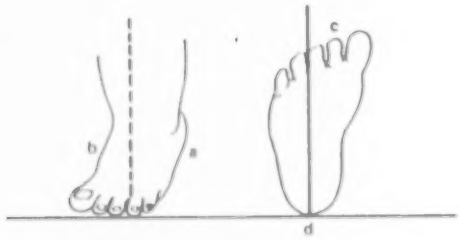
METATARSUS ADDUCTUS

CLINICAL SIGNS. Signs of metatarsus adductus are described in the figure below. In addition the forefoot does not move past neutral position.

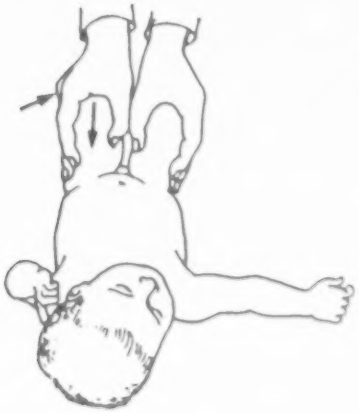
SCREENING FOR METATARSUS ADDUCTUS. The examination consists of testing the foot for flexibility and eliciting tonic foot reflexes, especially eversion reflex.

Management. Detection and referral before 3 months may improve the results of treatment.

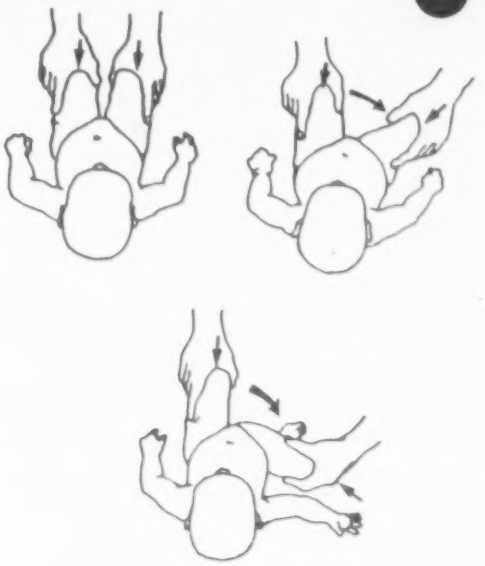
REFERRAL. Referral is made when rigidity and tightness prevent the foot from moving past the neutral position.



Signs of metatarsus adductus: (a) convex lateral border of foot, (b) concave medial border of foot with possible wrinkling, (c) space may exist between the large toe and second toe, (d) mid-line bisects third and fourth toes.



Barlow test. The baby's thighs are grasped as shown. The thigh is adducted toward the midline with gentle lateral pressure placed on the midthigh with the thumb. In a dislocatable hip, the femoral head can be displaced from the acetabulum. (From Barnard, M.U., 1981, et al.: Handbook of comprehensive pediatric nursing, New York, 1981, McGraw-Hill Book Co., p. 67. Used with permission.)



Ortolani test. With the baby on a firm surface, each hip is examined separately. The hip and knee are flexed (#1) with the examiner's index or middle fingers over the two greater trochanters and the thumb midthigh (see 1). One leg is then gently abducted (see 2 and 3). In a positive finding, the examiner senses a hip click by palpation or audibly as the femoral head slips from its dislocated posterior position into the acetabulum. (From Barnard, M.U., et al.: Handbook of comprehensive pediatric nursing, New York, 1981, McGraw-Hill, p. 66, as adapted from Stanisavljevic, S.: Diagnosis of congenital hip pathology in the newborn, Baltimore, 1964, The Williams & Wilkins Co.)

<u>Dislocated Hip</u>:

Congenital dislocated hip

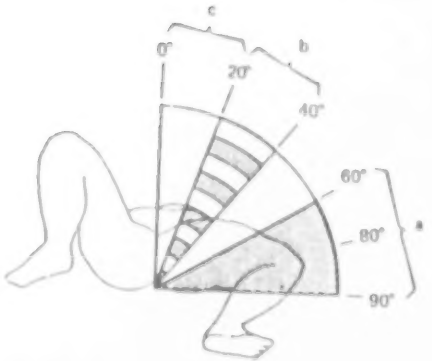
- increase in 1st born
- increase in breech deliveries
- increase in girls

Ortolani test (reduction)

Barlow's test (dislocation)

Hip Abduction:

-	some children	70-80 even up to 90°
-	most children	60°
-	some children	less than 60°
-	grey areas	40° - 60°
-	suspicious	20° - 40°
-	abnormal	0° - 20°



INTERNAL TIBIAL TORSION

Assessment. Internal tibial torsion is usually accompanied by metatarsus adductus and may occur as a result of:

1. Twisting or torsion of the tibia due to lying in "position of comfort" in utero with relaxed tendons. It may continue as a distorted asymmetric position for a few weeks after delivery.

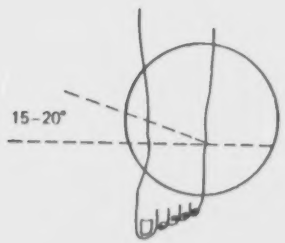
2. External forces applied to the tibia such as sleeping or sitting in position with haunches up, feet turned in. If these forces are removed, there is a natural tendency for the condition to improve. If the child continues these postural habits, then the deformity may persist.

SCREENING FOR INTERNAL TIBIAL TORSION. The procedure is as follows:

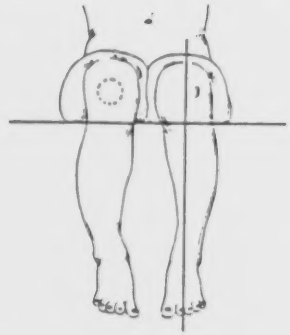
1. Examine the legs for range of motion and flexibility of the ankle. Elicit the tonic foot reflexes.

2. Hold the knee firmly with the foot in the neutral position. Observe the medial and lateral malleoli. See Figure below. The normal angle between them is approximately 15 to 20°.

3. Have the child sit on the exam table. Draw an imaginary line through the center of the patella downward through the toes. It should intersect between the 2nd and 3rd toes.



Normal angle between medial and lateral malleolus.



Management. Referral is made if the angle between the malleoli is much less than 15 to 20°, and if there are positive findings for metatarsus adductus.

GENU VALGUM (Knock-Knees)

Assessment. Knock-knees are described as a more than 10° to 15° deviant axis of the thighs and calves. "Physiologic" knock-knees are considered to be familial, developmental, and are associated with pronated feet, ligamentous relaxation, and overweight. Severe genu valgum (12 inches or more between the malleoli with femoral condyles touching) may be attributed to rickets or epiphyseal injury. Knock-knees are considered normal from ages 2 to 6 while physiologic genu varum is correcting itself and overcompensation is occurring.

SCREENING FOR GENU VALGUM. The procedure is as follows:

1. Elicit range of motion of legs and flexibility of ankles.

2. With the child standing, observe axis of thighs and calves. Normally they are parallel with a 10° to 15° deviance. See figure below.

3. From the front and back, observe the space between the knees. Normally this is approximately 1 1/2 inches.

4. From the front and back, observe the space between the ankles. Normally the space between the medial malleoli at the heels is approximately 2 inches.

Management. Referral is made if the knees are touching and the ankles are widespread with a corresponding axis deviation of thigh and calf of more than 10° to 15°.

GENU VARUM (Bowlegs)

Assessment. Genu varum is due to a deviant axis of the thighs and calves. See figure below. Bowlegs are defined as:

1. "Physiologic" bowlegs. This condition often occurs with internal tibial torsion and normal genu valgum. It is congenital, familial, or postural in origin. It is common and considered normal until the ages of 2 or 3 with spontaneous correction occurring with growth.

2. "Pathologic" bowlegs. This condition is rare and may be due to rickets, epiphyseal injury, achondroplasia, Morquio's disease, or Blount's disease.

SCREENING FOR BOWLEGS. The same procedure is followed as for knock-knees.

Management. Referral is made if the knees are widely spaced and the axis deviation of thigh and calf is more than 10° to 15°.

Axis of thigh and calf: (a) normal axis,
(b) deviant axis exhibiting knock-knees (genu valgum),
(c) deviant axis exhibiting bowlegs (genu varum).
(Adapted from R.J. Ducroquet, et. al., La marche et les boiteries, Paris: Masson, 1965; English translation: Lippincott, 1968.)

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Toe Walking:

1. Habit
2. Cerebral palsy
3. Tight heel cords

FEMORAL ANTEVERSION

Presents as toeing-in and appearance of bowlegs at the age of 3 or 4 years, and is due to rotational deformities of the hip. These children may have as much as 90° internal rotation of the hips in extension and sharply restricted external rotation. Normal internal rotation at birth is 38° to 60°.

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Extremities		
Check ROM (range of motion) Examine for anomalies, pain, tenderness, temperature, bone deformities, orthopedic conditions of feet, legs, gait, stance	Full ROM all joints, no inflammation edema or deformity, gait and stance appropriate for age Normal internal and external rotation	Immobility, redness, pain, tenderness, elevated temperature of joints, genu varum (bow legs), genu valgum (knock knees), metatarsus varus, tibial torsion, femoral anteversion
Check hips for congenital dislocation		Angle of hip abduction - 0-20° abnormal; 20°-40° suspicious; refer 0°-40° for consultation Palpable "clunk" with Ortolani or Barlow's maneuver
Spine		
Inspect and palpate spine for masses, tenderness contour	No abnormalities, tenderness, masses	Tufts of hair, dimples, discolorations, cysts, masses Lateral curvature (scoliosis) Posterior curvature (kyphosis) Anterior concavity of lumbar (lordosis) and cervical spine (see below)
ROM Forward bending test	No posterior or lateral curvature	
Muscles		
Evaluate muscle development Evaluate posture	Good muscle tone, development	Tenderness, paralysis, spasm or "tightness," asymmetry

SCOLIOSIS SCREENING

OBJECTIVE: To detect "S" shaped lateral curvatures of the spine as early as possible so that treatment may be instituted as necessary to prevent secondary lung pathology and future back ailments.

PROCEDURE	KEY POINTS
1. Explain the procedure to the child or adolescent to be screened and his/her parent(s) or primary caretaker.	

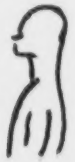
2. Expose the child's back as completely as is practical.

3. Have child stand erect with heels touching, feet parallel to one another, and weight equally distributed on both feet.

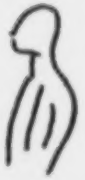
Slouching and other forms of poor posture may result in erroneous findings. Having child place heels or toes on a strip of masking tape placed on the floor will aid in obtaining correct body alignment.

KEY POINTS

4. Stand on child's left side and observe as illustrated: Check SIDE VIEW:



Upper Back Normally Rounded Neck Erect, Chin In, Head In Balance



Upper Back Slightly More Rounded Neck Slightly Forward, Chin Slightly Out

Upper Back Markedly Rounded Neck Markedly Forward, Chin Markedly Out

5. Stand behind the child and observe for difference in levels of shoulders, scapulas, and hips, prominence of either scapula or hip, and differences in the size of the spaces between the arms and the trunk, as illustrated below: Check for HIGH SHOULDERS:

HIGH SHOULDERS

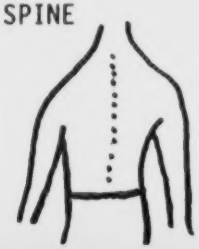
Shoulders Level (Horizontally)

One Shoulder Slightly Higher Than Other

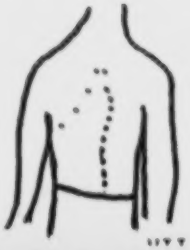
One Shoulder Markedly Higher Than Other

Check for CURVED SPINE:

CURVED SPINE



Spine Straight



Spine Slightly Curved Laterally

Spine Markedly Curved Laterally

Check for HIGH HIP:

HIGH HIP

Hips Level
(Horizontally)

One Hip
Slightly
Higher

One Hip
Markedly
Higher

6. Have child extend both arms until they are parallel to the floor, put palms of hands together, and bend forward keeping legs straight. Again observe for symmetry. (see following illustration)

LUMBAR PROMINENCE

RIB HUMP

Normal
Symmetrical

Abnormal
Asymmetrical

7. Allow child to return to erect position.

8. Stand in front of child. Have him/her bend forward as previously described. Observe for rib hump (asymmetry) as illustrated.

Normal
Symmetrical

Abnormal
Asymmetrical

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9. Have child return to the erect position and quickly re-check for high shoulder, high scapula, unequal space between arms and hips, and high hip.

10. Refer all children presenting with visual signs of a curve for medical evaluation to include a diagnostic x-ray.

Scoliosis occurs in 5% to 10% of the general population. X-rays are generally necessary to differentiate structural from functional scoliosis. Early treatment can prevent increasing deformity.

REFERENCE:

Alexander, Mary M., Brown, Marie Scott, Pediatric Physical Diagnosis, New York: McGraw-Hill Book Co. 1974.

Chow, Marilyn, et.al, Handbook of Pediatric Primary Care, New York: John Wiley and Sons, 1979.

APPRAISAL	EXPECTED FINDINGS	IMPLICATIONS FOR HEALTH CARE
Check gait, hopping, skipping Level of consciousness Motor - check major muscle groups all extremities	Normal gait and balance Fully conscious, alert, oriented Coordination, tone, symmetry	Gait abnormal, ataxic, disoriented, lethargic, inappropriate motor
Sensory	Sensation to light, touch, pain, pressure normal symmetrical	Sensory abnormality
Spontaneous movements Infant neurological assessment test	Normal, symmetrical, coordinated	Asymmetrical or irregular
1. Moro reflex	Birth to 8 weeks - normal 8-18 weeks - body jerk only 4-5 mos. assimilated	Absent in newborn; present at 5-6 mos. age
2. Sucking and rooting	Normal root toward tactile stimuli sucking response normal; 2-4 mos. assimilated	Absent
3. Palmar and plantar grasp	Finger grasp to 3-4 months, toes curl downward until 8 months	Infant: absence of response Child: hyperextension of all toes or absence of response
4. Babinski	Infant: hyperextension all toes; assimilated 6-8 mos; absence of response; assymetrical response Child: flexion of all toes	
5. Stepping	Alternate stepping; assimilated 2 mos.	Asymmetry of stepping
6. Landau	Spine maintained horizontal by 3 mos. slightly concave by 10 mos.	Absence of postural response (i.e., floppy)
7. Tonic neck	Assimilated by 4 mos.	Hyperextension of neck and precocious arching of back Positive after 5 mos.
8. Head support	Briefly at 1 mo. Good by 4 mos.	Hyperextension, abnormally precocious head control Delayed head control
9. Ability to sit without support	6-7 mos.	Delay

Adapted from Maternal and Child Health Manual of North Carolina, Revised 7/78.

"RED FLAGS" - CONCERNS TO LATER DEVELOPMENT

The following is a listing of "red flags" in the newborn period that should be noted and observed as possible concerns to later development:

1. Asymmetrical findings - Newborn shows symmetrical and equal development.

   a. Fisting on one side - Hemiparesis should be ruled out.
   b. Asymmetrical Moro responses - Hemiparesis should be ruled out.

2. Absence of primary reflexes such as Moro, hand grasp - This may indicate poor cerebral development or cerebral damage.

3. Lack of spontaneous movements - This may indicate paralysis or weakness.

4. Extreme jitteriness - This may be early signs of hypertonicity or a sensitive child. The child will need special handling, with mother given extra support.

5. Extremes of muscle tones - Either hypotonia or hypertonia could indicate cerebral damage.

6. Scissoring of the lower extremities - This may indicate increased tone or a strong positive supporting reflex.

7. Excessive fisting - Too strong a grasp reflex may be interfering with normal opening of the hands at rest and other relaxed times of the day.

GUIDELINES FOR HIV AT RISK AND INFECTED CHILDREN IN DHEC CLINICS

Children's Health will provide diagnostic testing and counseling services for children with HIV infection, or AIDS. Services through WIC, CRS (HIV/AIDS alone does not constitute reason for acceptance), Child Health and immunization clinics may be needed by individuals with these conditions. Whenever needed, these or other services shall be provided to patients with these conditions as they would be to eligible patients with any underlying health problems.

These guidelines are presented to help clinic staff take appropriate precaution to protect themselves as well as the patient from any untoward situation that may occur. The guidelines are somewhat broad, as it is difficult to predict every situation that might arise in the clinic setting. Information, techniques and procedures relative to HIV are evolving constantly. As new information is known, it will be passed along to the districts. All professional staff members must refer to the medical literature on a regular basis if they are to become and remain knowledgeable about HIV. Also refer to the AIDS Manual, Office of Public Health Social Work HIV/AIDS Manual, and Office of Public Health Nutrition Manual for Standards of Care and guidelines.

GENERAL INFORMATION:

Follow-up of Children of HIV-Infected Mothers

Any child whose mother has HIV infection should be HIV tested soon after birth. It is imperative that Maternal Health and Children's Health have a good system of communication to ensure identification and initiation of care of these infants. Informed parental/guardian consent is usually necessary for this. Almost all infants born to HIV-infected women will test HIV-antibody positive at birth. The antibody-positive infant should be considered infected, probably immune-deficient, and potentially infectious. About 30-50% of these infants are truly infected, and the rest are positive due to passive transfer of the mother's antibodies. By 15 to 18 months of age, infants not truly infected will lose their passively-transferred HIV antibodies and serorevert to antibody-negative. Seroreversion during the first 18 months of life should be confirmed by a second negative HIV test in 3 months.

Infants Seropositive at Birth

The earliest time for additional testing of an infant is at 4-6 months when passively transferred maternal antibodies will have begun to decline. Periodic (every 3-6 months) testing of the infant until 15-18 months of age, correlated with other HIV tests such as the p 24 Antigen and T-Lymphocyte staging, is suggested to facilitate referral and treatment decisions.

Infants Seronegative at Birth

Very rarely, infants born to HIV-infected women will test negative at birth. This occurs primarily when the mother became infected late in pregnancy (but had not yet produced enough antibodies to passively transfer to the infant) with the infant becoming HIV infected but seroconverting to HIV-positive later. However, this can also occur if the infant is not infected (true

negative) and also has no maternal antibodies. It is recommended that infants who are HIV-antibody negative at birth but born to HIV-infected women be retested at 6-8 weeks, 6 months, and 15 months, and also anytime possible HIV-related symptoms develop.

Symptomatic Infants

If infant presents with symptoms suggestive of HIV disease, consider risk assessment and counseling of mother. Permission would be needed for testing of the infant/child.

If an infant born to an HIV-infected woman develops any symptom suggestive of HIV-disease, HIV testing/retesting with p 24 Antigen, Beta-2-microglobulin, and Lymphocyte subset profile testing with CBC, as well as referral for medical evaluation and treatment decisions, is strongly recommended.

CARE DURING CLINIC VISIT/PRECAUTIONS FOR PROCEDURES:

See Agency Policy for Blood and Body Fluid Precautions for Health Care Workers. (Appendix G) See also Guidelines for Implementation of OSHA Regulations.

Individuals who have chronic dermatitis (i.e., eczema, severe chapping, or inflammation with small skin breaks) that involves the hands, arms, neck or face must utilize special effort to avoid exposure of affected skin areas to body fluids. If splash exposure occurs in an area of dermatitis, the skin must be immediately washed with copious amounts of soap and water. (Region IV Guidelines)

Laboratory Studies - See Lab Section.

IMMUNIZATIONS:

Recommendations for routine immunization of HIV-infected children - United States (MMWR, April 7, 1989, Vol. 38/No. 13)

Vaccine	Known HIV infection	
	Asymptomatic	Symptomatic
DTP[1]	Yes	Yes
OPV[2]	No	No
IPV[3]	Yes	Yes
MMR[4]	Yes[5]	Yes[6]
HbCV[7]	Yes	Yes
Pneumococcal	Yes	Yes
Influenza	No[8]	Yes

[1]DTP = Diphtheria and Tetanus Toxoids and Pertussis Vaccine, Adsorbed. DTP may be used up to the seventh birthday.
[2]OPV = Poliovirus Vaccine Live Oral, Trivalent: contains poliovirus types 1, 2, and 3.
[3]IPV - Poliovirus Vaccine Inactivated: contains poliovirus types 1, 2, and 3.

[4]MMR = Measles, Mumps, and Rubella Virus Vaccine, Live.
[5]The DHEC nurse should consult with a physician to determine the appropriateness of MMR vaccine in the HIV infected child, due to the difficulty in determining if a child is asymptomatic or symptomatic.
[6]Should be considered.
[7]HbCV = Vaccine composed of Haemophilus influenzae b polysaccharide antigen conjugated to a protein carrier.
[8]Not contraindicated.

Asymptomatic HIV infection in children is not a specific indication for influenza vaccine, but the vaccine is also not contraindicated in this group. Symptomatic HIV infection is a definite indication for influenza vaccine. Since it is difficult to determine which child is symptomatic versus asymptomatic and since children in both groups could benefit from the vaccine, the nurse may give influenza vaccine to all HIV infected children without specific physician consultation as long as there are no known contraindications (i.e., egg allergy, a physician statement requesting that this child not receive influenza vaccine).

IPV should always be used in place of OPV.

DTP, IPV, HbCV and Pneumococcal vaccine can be given by the DHEC nurse under standing orders (physician's specific order not required).

Children born to HIV infected women should be regarded as possibly HIV infected until proven otherwise. As long as their HIV status is unknown, they should receive the vaccines that would be given an HIV infected child. Even if such children prove to be uninfected, they should still receive IPV rather than OPV as long as there is an HIV infected person in the household.

Health Education for Infants Born to HIV Infected Women:

Basic information for parent or guardian should include:

1. The need for testing for HIV soon after birth, and at 3 month intervals to 15 or 18 months.

2. Signs and symptoms of infections stressing the fact that these infants may be more prone to infections and to more serious infections than the normal population.

3. Signs and symptoms of failure to thrive.

4. Emphasizing that the infant needs regular routine care. The nurse needs to verify that the infant has a private M.D. for sick care as well as well-care if he/she is not coming to the health department for well-care.

5. These infants/mothers have the same health education needs as all Children's Health patients, such as safety, prevention, growth and development, etc.

Preteens and Teens:

For this population, health education will primarily deal with prevention of infection or prevention of spread of infection.

Basic information would include:

1. Risk Reduction Behavior

   Saying "NO" to drugs, postponing sexual activity, or practicing safe sex (use of condoms), etc.

2. If sexually active, assuring that family planning information is offered and encouraging enrollment in Family Planning.

3. Modes of transmission of sexually transmitted diseases.

REFERRALS:

Social Work:

All infants of HIV infected women and all children with HIV infection would be considered at risk for psychosocial reasons due to the level of stress and complexity of services needed. Social work referrals should be considered on all of these patients for assessment, counseling and case management unless a system is already in place and these services are being provided.

Nutrition:

AIDS opens the door to opportunistic infections. The best defense is optimal nutritional status. All infants with the diagnosis of AIDS and children >15 mos. who are HIV positive should be referred to the nutritionist.

CRS:

Referrals can be made to CRS for conditions that the infant/child has that are accepted by CRS (see CRS Manual). The infant/child will not be accepted for the management of HIV/AIDS status alone.

Medical Care:

Once the infant/child has a positive HIV test, a referral should be made to a primary physician (pediatrician, immunologist, if available). Referrals for EPSDT patients should be made through written or direct contact with parental written consent and not through the DSS "green form" (DSS 1724). Resources vary from county to county and a district plan for referral needs to be establi hed. As the numbers of patients increase, a referral network may be established so that there is a more uniform method of referral.

SSI:

These patients can also be referred to SSI for financial assistance. The parent or guardian can be given information on how to access SSI. Patient medical information does not need to be transferred at that time. SSI will

have the parent/guardian sign a release if records are needed. Refer patients when they are determined HIV positive. They may not be accepted at this time, but in the event of their developing HIV disease, the SSI application process will have begun.

Once a child has symptoms of HIV disease, his eligibility is virtually assured. Those who were not accepted initially can reactivate their application and those who never applied should be encouraged to do so.

BabyNet:

All HIV positive infants can be referred to BabyNet. They will then be in the BabyNet tracking system. If and when they develop symptoms, they will then receive evaluation for their development.

CONFIDENTIALITY

Ensuring the confidentiality of HIV related information is critical to maintaining and promoting confidence in the Public Health counseling and testing programs. Individual public health records are legally protected against unauthorized disclosure.

Response to a Subpoena Pertaining to a Medical Record:

The following necessary precautions and steps must be considered and followed when clinical records are subpoenaed:

> Any medical records may be subpoenaed except those relating to a known or suspected case of sexually transmitted diseases. Confidentiality of sexually transmitted disease records is protected under Section 44-29-135 of the South Carolina Code.

"Section 44-29-135. All information and records held by the Department of Health and Environmental Control and its agents relating to a known or suspected case of sexually transmitted diseases are strictly confidential except as provided in this section. The information must not be released or made public, upon subpoena or otherwise, except under the following circumstances:

> "a. Release is made of medical or epidemiological information for statistical purposes in a manner that no individual person can be identified; or
>
> "b. Release is made of medical or epidemiological information with the consent of all persons identified in the information released;
>
> "c. Release is made of medical or epidemiological information to the extent necessary to enforce the provisions of this chapter and related regulations concerning the control and treatment of sexually transmitted disease;
>
> "d. Release is made of medical or epidemiological information to medical personnel to the extent necessary to protect the health or life of any person;

** "e. In cases involving a minor, the name of the minor and medical information concerning the minor must be reported to appropriate agents if a report is required by the Child Protection Act of 1977. No further information is required to be released by the department. If a minor has Acquired Immune Deficiency Syndrome (AIDS) or is infected with Human Immunodeficiency Virus (HIV), the virus that causes AIDS, and is attending the public schools, the superintendent of the school district and the nurse or other health professional assigned to the school the minor attends must be notified."

CONGENITAL SYPHILIS

I. GOALS AND OBJECTIVES

A. THE GOAL OF THE PROGRAM IS TO: Prevent congenital syphilis in South Carolina. The incidence of congenital syphilis for 1987 is 21.8/100,000 live births and for 1988 is 20.8/100,000.

By 2000, it is hoped that the annual reported incidence of congenital syphilis in South Carolina will be reduced to 8/100,000 live births.

B. THE OBJECTIVE IS TO:

1. Establish a program that will prevent the spread of syphilis from a mother to her fetus.

2. Prompt recognition and management of the problem is needed to avoid future complications when the spread has already occurred.

II. PRENATAL SCREENING

A. All pregnant women in South Carolina must be tested for syphilis (RPR or VDRL) within 72 hours of their first exam by a physician (Code of Laws 1976 44-29-120).

B. In areas of high syphilis prevalence, or in patients at high risk, screening should be repeated in the third trimester and again at delivery. (South Carolina has a high prevalence of syphilis.)

III. SCREENING OF NEWBORN AT TIME OF DELIVERY

Cord blood serology should be done on all babies and must be done on those babies born to mothers who have positive serology, unless venous blood from the infant is tested at time of delivery. Positive RPR's should be confirmed with FTA or MHATP.

IV. CONGENITAL SYPHILIS IS PREVENTABLE IF

A. A team approach is established among health care workers for sharing pertinent information.

B. A pregnant woman participates in a prenatal care program.

C. A third trimester and cord serology screening program is implemented.

D. A thorough evaluation is made when a congenital syphilis case is found to learn how the program failed in order to correct the deficiency in the future.

CONGENITAL SYPHILIS CASE MANAGER (CSCM)

The congenital syphilis case manager is a nurse assigned by the district to facilitate the follow-up of pregnant women with positive syphilis serologies and coordinate the follow-up of infants with positive syphilis serologies. The congenital syphilis case manager's major assignment may be in STD, Maternity or Children's Health, but she/he must coordinate the efforts of all three programs. The congenital syphilis case manager would be expected to spend 5 - 20% of his/her time involved with congenital syphilis case management work (depending on district syphilis morbidity and district size). In some districts the case manager may delegate to a county nurse the follow-up of pregnant women with syphilis and their infants, however the district case manager has responsibility for assuring follow-up is appropriate. The congenital syphilis case manager is also expected to work with the hospitals where deliveries are done and with the private providers of prenatal, primary and pediatric care. The case manager will continue to follow the mother and infant until treatment has been proven adequate or until the child is two years old. For children with ongoing needs for medical evaluation, treatment, or case management CRS is a resource.

Syphilis Flow Chart for Pregnant Women

Prenatal Clinic

Prenatal Syphilis Screening (RPR)

1. Initial visit
2. 34-36 weeks gestation
3. PRN

STD Clinic

1. STAT RPR on all female syphilis contacts
2. RPR and MHATP to lab
3. Treatment for presumptive diagnosis of syphilis
4. Female contacts asked if last menstrual period (LMP) within past month
5. If not, do pregnancy test (use most sensitive type of pregnancy test if very early pregnancy)
6. If patient tests positive for another STD, screen for syphilis
7. All pregnant women suspected of having syphilis reported by designated person to the congenital syphilis case manager

Refer to maternity clinic if pregnancy suspected

Notify Dist. Director → Discuss case with private provider as needed

When a positive syphilis slip returns to clinic

Notify CDI → CDI consults with case manager and does contact interview

Case manager notified by designated person in clinic and copies of lab slips and other needed patient information sent to the case manager

Congenital syphilis case manager

1. Contacts the patient
2. Has a face-to-face encounter with the patient for the purpose of patient education, i.e., syphilis and possible effects on the fetus
3. Assures that lab reports are complete
4. Assures patient is evaluated and a physical assessment is done by an obstetrician or STD clinician
5. Assures that treatment is adequate for both mother and fetus

6. Send a copy of lab slip to the administrative assistant for newborn screening (Burl Parsons) ——— Notify appropriate local child health nurse

Pregnant woman is followed with a monthly RPR (recommended in 1989 CDC STD Guidelines) by her prenatal care provider or STD clinic until delivery.

Congenital Syphilis Case Manager:

1. Reviews results of monthly RPR ——— Referral for further treatment if indicated
2. Assures prenatal chart information including pertinent STD information is sent to hospital, notify hospital infection control nurse where delivery is anticipated to occur as soon as possible in case of antenatal problems including preterm labor.
3. Notify anticipated delivery physician, hospital infection control nurse, and pediatrician, if known.

Stillborn Infant

1. Delivery MD inspects placenta and cord
2. MD to request autopsy
3. Case manager to notify DMD as representative of the Fetal-Infant Death Review Committee.

Live Born Infant

1. Case manager follows up on delivery information, including results of infant's serology.
2. Assures appropriate treatment is given, if indicated, to the infant.
3. Assures the infant is enrolled in an appropriate setting for follow up care.

Refer mother to:

1. Appropriate post partum and Family Planning Care
2. Social work intervention

Infant Congenital Syphilis Flow Chart
Positive Cord Blood

Also see congenital syphilis followup schedule and Central office flow chart.

DHEC (STD) receives lab report
Notify the following

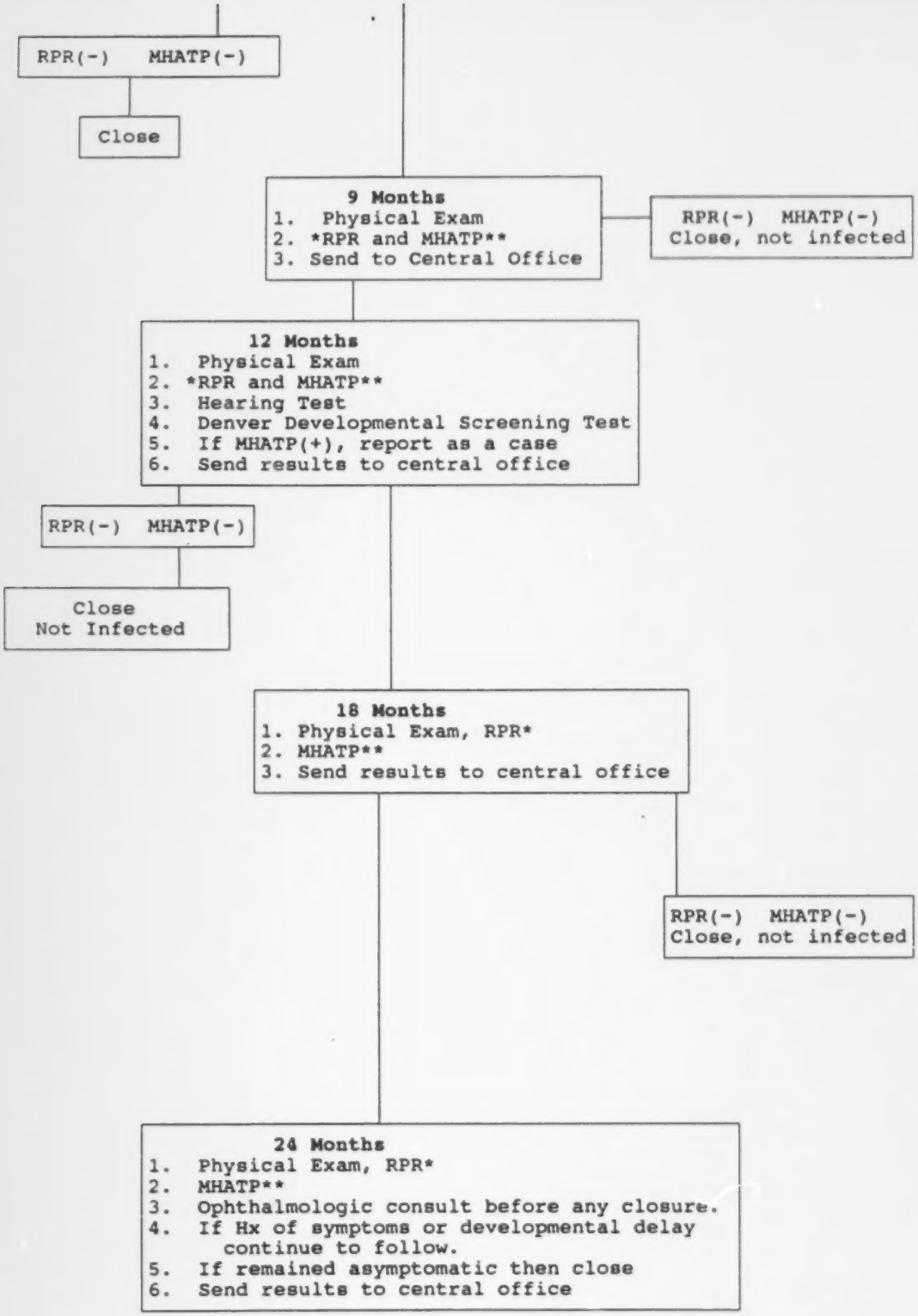
- Congenital Syphilis District Case Manager
  - Notifies County Child Health Nurse
    - Physical exam serology and RX if needed interpreted by MD and case manager.
      - Report all laboratory and Exam results to Assistant STD Director at Central Office
- District Health Director
- Communicable Disease Investigator
  - Locates mother & child Ascertains Dx of mother Reports findings to District case manager and county child health nurse.
    - Completes CDC Report within 2 weeks Assists child health nurse as needed.

1 Month
1. Physical Exam,
2. RPR and MHATP if not done at birth and when indicated
3. Results to central office

3 Months
1. Physical Exam
2. *RPR & MHATP
3. Results to Central office

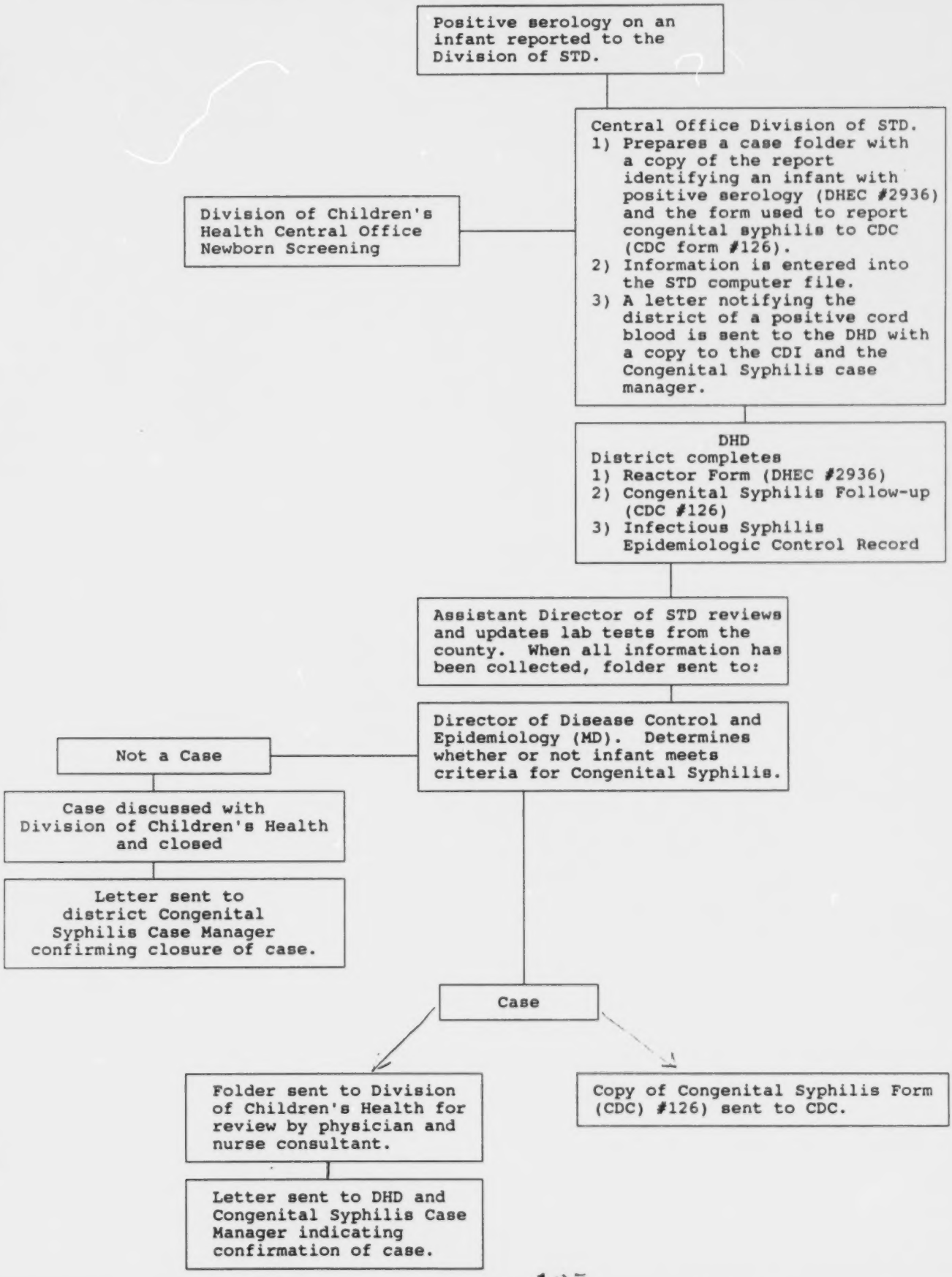
- RPR(-) MHATP(-)
  - Close
- Reactive

6 Months
1. Physical exam
2. *RPR, MHATP
3. Individual Evaluation for diagnosis of congenital syphilis if one has not been made earlier.
4. Results to central office
5. If MHATP(+) continue follow-up.
6. If RPR also (+), report as a case.
7. Refer to CRS if diagnosis made at this time or any other stage within next 24 months if child meets criteria.



*RPR need not be repeated after 1st nonreactive test.
**MHATP need not be repeated after 1 negative test.
NOTE: MHATP and FTA-ABS are interchangeable for the purposes of this chart.

CENTRAL OFFICE MANAGEMENT OF CONGENITAL SYPHILIS FLOW CHART


Positive serology on an infant reported to the Division of STD.
Central Office Division of STD.
1) Prepares a case folder with a copy of the report identifying an infant with positive serology (DHEC #2936) and the form used to report congenital syphilis to CDC (CDC form #126).
2) Information is entered into the STD computer file.
3) A letter notifying the district of a positive cord blood is sent to the DHD with a copy to the CDI and the Congenital Syphilis case manager.
Division of Children's Health Central Office Newborn Screening
DHD
District completes
1) Reactor Form (DHEC #2936)
2) Congenital Syphilis Follow-up (CDC #126)
3) Infectious Syphilis Epidemiologic Control Record
Assistant Director of STD reviews and updates lab tests from the county. When all information has been collected, folder sent to:
Director of Disease Control and Epidemiology (MD). Determines whether or not infant meets criteria for Congenital Syphilis.
Not a Case
Case discussed with Division of Children's Health and closed
Letter sent to district Congenital Syphilis Case Manager confirming closure of case.
Case
Folder sent to Division of Children's Health for review by physician and nurse consultant.
Letter sent to DHD and Congenital Syphilis Case Manager indicating confirmation of case.
Copy of Congenital Syphilis Form (CDC) #126) sent to CDC.

CASE DEFINITION FOR CONGENITAL SYPHILIS AT BIRTH TO BE USED FOR REPORTING PURPOSES ONLY

For reporting purposes, congenital syphilis includes cases of congenitally acquired syphilis in infants and children, as well as syphilitic stillbirths.

A CONFIRMED CASE of congenital syphilis is an infant in whom Treponema pallidum is identified by darkfield microscopy, fluorescent antibody, or other specific stains in specimens from lesion, placenta, umbilical cord, or autopsy material.

A PRESUMPTIVE CASE of congenital syphilis is either of the following:

A. Any infant whose mother had untreated or inadequately treated[1] syphilis during pregnancy, regardless of findings in the infant;

OR

B. Any infant or child who has a reactive treponemal test for syphilis and any one of the following:

1. any evidence of congenital syphilis on physical examination[2]; or
2. any evidence of congenital syphilis on long-bone radiograph; or
3. reactive cerebrospinal fluid (CSF) VDRL[3]; or
4. elevated CSF cell count or protein (without other cause)[3]; or
5. quantitative nontreponemal serologic titers which are fourfold higher than the mother's (both drawn at birth); or
6. reactive test for FTA-ABS-19S-IgM antibody[3].

A SYPHILITIC STILLBIRTH is defined as a fetal death in which the mother had untreated or inadequately treated syphilis at delivery of a fetus after a 20-week gestation or of a fetus weighing > 500 g.

---

[1]Inadequate treatment consists of any non-penicillin therapy, or penicillin given <30 days prior to delivery.

[2]Signs in an infant (<2 years of age) may include hepatosplenomegaly, characteristic skin rash, condyloma lata, snuffles, jaundice (syphilitic hepatitis), pseudoparalysis, or edema (nephrotic syndrome). Stigmata in an older child may include: interstitial keratitis, nerve deafness, anterior bowing of shins, frontal bossing, mulberry molars, Hutchinson's teeth, saddle nose, rhagades, or Clutton's joints.

[3]It may be difficult to distinguish between congenital and acquired syphilis in a seropositive child after infancy. Signs may not be obvious and stigmata may not yet have developed. Abnormal values for CSF VDRL, cell count, and protein, as well as IgM antibodies, may be found in either congenital or acquired syphilis. Findings on long-bone radiographs may help, since these would indicate congenital syphilis. The decision may ultimately be based on maternal history and clinical judgement; the possibility of sexual abuse also needs to be considered.

This reporting case definition is approved by the Council of State and Territorial Epidemiologist and CDC. MMWR Vol. 38, No. 48, December 8, 1989, p 828.

IX.

CLINICAL MANIFESTATIONS OF CONGENITAL SYPHILIS

AREA AFFECTED	EARLY MANIFESTATIONS	STIGMAS	LATE MANIFESTATIONS
Skin	Maculopapular rash Diffuse inflammation of palms and soles Mucocutaneous lesions about nose, mouth and anus Condylomas Cafe'-au-lait appearance Pemphigus Paronychia Deformities of nails Alopecia	Rhagades	Condylomas Syphilides Gummas
Mucous membranes	Rhinitis Mucous patches	Saddle Nose	
Bones	Periostitis Osteochondritis (epiphysitis) Pseudoparalysis (Parrot) Dactylitis	Bossing of head Hutchinson teeth Mulberry molars	Osteoperiostitis Saber shin Gummas Hydrarthrosis Arthritis
Eye	Chorioretinitis Iritis	Keratotic scar Chorioretinitis Pupillary change Optic atrophy	Interstitial Keratitis Chorioretinitis Optic atrophy
Nervous system	Meningitis Hydrocephalus	Deafness	Deafness Neurosyphilis
Other	Pneumonia alba Hepatitis Jaundice Splenomegaly Nephritis Lymphatic hyperplasia Orchitis Malnutrition Anemia Gastrointestinal disturbances Fever Hemorrhage	Syphilitic facies	Paroxysmal hemoglobinuria

Waldo E. Nelson: Textbook of Pediatrics Saunders Philadelphia, 1979, 1987.

X. EVALUATION AND TREATMENT OF CONGENITAL SYPHILIS
(Adopted from the CDC 1989 STD Treatment Guidelines)

A. Who should be evaluated:

Infants should be evaluated if they were born to seropositive (nontreponemal test confirmed by treponemal test) women who:

1. Have untreated syphilis: or
2. Had syphilis which was treated in pregnancy but:
   a. less than 1 month before delivery; or
   b. with a non-penicillin regimen; or
   c. with the appropriate penicillin regimen but without the expected decrease in nontreponemal antibody titers following penicillin therapy: or
3. Do not have a well-documented history of syphilis treatment; or
4. Have a well-documented history of treatment before pregnancy but had insufficient serologic follow-up during pregnancy to assess disease activity.

An infant should not be released from the hospital until the serologic status of its mother is known.

B. Evaluation of the infant

The clinical and laboratory evaluation of infants born to women described in (A above) should include:

1. A thorough physical examination for evidence of congenital syphilis.
2. Nontreponemal antibody titer.
3. CSF analysis for cells, protein, and VDRL.
4. Long bone x-rays.
5. Other tests as clinically indicated (e.g., chest x-ray).
6. If possible, FTA-ABS on the purified 19S-IgM fraction of serum (e.g., separation by Isolab columns).

C. Therapy Decisions

Infants should be treated if they have:

1. Any evidence of active disease (physical examination or x-ray); or
2. A reactive CSF-VDRL; or
3. An abnormal CSF finding (white blood cell count >5/mm^3 or protein >50 mg/dl) regardless of CSF serology; or
4. Quantitative nontreponemal serologic titers which are fourfold (or greater) higher than their mother's; or
5. Positive FTA-ABS-19S-IgM antibody, if performed; or
6. A mother who has untreated syphilis.

D. Treatment

Treatment should consist of: 100,000-150,000 units/kg of aqueous crystalline penicillin G daily (administered as 50,000 units/kg IV every 8-12 hours) or 50,000 units/kg of procaine penicillin daily (administered once IM) for 10-14 days. If more than 1 day of therapy is missed, the entire course should be restarted. All symptomatic neonates should also have an ophthalmologic examination.

If all conditions in (C above) are negative, so that the infant does not meet criteria for intensive therapy, but the child needed evaluation (met the criteria in A), and if close follow-up cannot be ensured, then 50,000 units/kg of benzathine penicillin G should be given IM as a one-time dose.

XI. LABORATORY PROCEDURES

A. DARKFIELD EXAM CRITERIA

Prior to any treatment, a darkfield exam should be performed when any of the following symptoms are present:

1. Vesiculobullous lesions
2. Nasal discharge
3. Mucous patches
4. Condylomata lata

The venereal disease investigator can perform the darkfield exam.

B. Serologic Test For Syphilis (RPR)

The RPR card test is a non-treponemal (i.e., the antigen used in the test is not from a treponeme) testing procedure for the serologic detection of syphilis. The antigen is a modification of the VDRL antigen. The positive test reaction is a "flocculation", which is read macroscopically. The RPR test detects "reagin", an antibody-like substance present in sera of persons with syphilis, and occasionally in sera of persons with other acute or chronic conditions. The test can be quantitated; i.e., an endpoint titer can be determined. Because of this, the test can be used to evaluate effectiveness of therapy.

C. HA-TP - (MHA-TP)

The Microhemagglutination-Treponema pallidum (MHA-TP) test is a test for syphilis; i.e., the antigen used in the test is derived from the treponemal organism. Thus, the antibody detected in this test is specific for treponemes. There is cross-reaction with other treponemal diseases, but these are rare in the U.S. (pinta, bejel and yaws, e.g.). This test is highly specific and sensitive, but cannot be used to evaluate effectiveness of therapy or to determine the stage of the infection. Titers are not given in this test.

D. 19S-IGM - This is not currently done in the SCDHEC Laboratory.

CONGENITAL SYPHILIS FOLLOW-UP SCHEDULE

DIAGNOSED CONGENITAL SYPHILIS CASE	Birth	1 mos.	3-4 mos.	6 mos.	9 mos.	12 mos.	18 mos.	24 mos.
STS-Reagin Test (RPR)	X	X1	X2	X2	X2	X2	X2	X2
Treponemal Ab Test MHA - TP	X	X1	X	X3	X3	X3	X	
Vision Testing								X
Hearing Testing						X		
Physical Examination	X	X	X	X	X	X	X	X
Developmental Testing						X		X

(RPR and MHATP should be repeated at 2 months of age if clinically indicated)

[1]If one or more of the following conditions occur:

If not done at birth
If child not treated
If clinically indicated after consultation with physician

[2]RPR does not need to be repeated after the first non reactive test, unless lab error suspected

[3]MHATP - If reactive at 6 months repeat at 9 months
If reactive at 9 months repeat at 12 months
If reactive at 12 months repeat at 18 months

XIII. SUGGESTIONS FOR DISTRICT MANAGEMENT OF CONGENITAL SYPHILIS

I. Each district should have a committee to discuss the incidence, prevention, treatment and problems related to congenital syphilis in their district.

1. Representatives of maternal health, child health and the STD program, as well as the District Medical Director and District Nursing Director, should be on the committee.

2. Issues to be discussed by this group should include communications between programs, communications with hospitals so that infants needing cord blood samples get appropriate blood testing, and involvement of the private sector so that proper testing, treatment and follow-up are done.

3. This committee should oversee the assignment of case management responsibilities.

II. Each district needs to have a plan to insure that treatment has been, or will be, provided for infants suspected of having congenital syphilis. This plan may vary from district to district, but some points to consider when making this plan are:

1. Individual orders rather than standing orders for treatment are needed.

2. Pediatric dosages are not routinely kept in the county health departments.

3. If a 10-day treatment regimen is prescribed, arrangements must be made to make sure the infant receives an injection every day, including weekend days.

4. Infants suspected of having congenital syphilis who meet evaluation criteria listed under B on page 13 should have a lumbar puncture done before treatment. This procedure cannot be done in the health department.

5. Alternate locations for treating infants with congenital syphilis should be considered, such as emergency rooms, hospitals, and pediatrician's offices.

III. After the infant is treated, ongoing follow-up is needed to make sure there are no neurological sequela to the disease.

1. At the age of two years children who have been diagnosed as having congenital syphilis need to be seen by an ophthalmologist (not merely screened for visual acuity). Resources for this can be medicaid or the CRS program.

2. Children who have remained asymptomatic do not need to be followed after the second birthday, but children who are developmentally delayed or who have symptoms (orthopedic, hearing, vision, etc.) should continue to be followed.

3. Information regarding the child, eg. results of blood tests, screenings etc. should be forwarded to the Newborn Screening Program in the Division of Children's Health. This assists with the active surveillance of this disease.

LINE OF DEFENSE FAILURES

A. CASE DETECTION FAILURES

Interview failures

Investigation failures

Management error

Reporting failure

Failure to preventively treat

B. REACTOR FOLLOW-UP FAILURES

3 month follow-up serology failure

6 month follow-up serology failure

12 month follow-up serology failure

C. PRENATAL CARE FAILURES

Delay of prenatal care

Blood test for Syphilis omission

Incubating Syphilis not detected

D. RESCREENING AT THIRD TRIMESTER FAILURES

No re-testing of low income pregnant women

No re-testing of single pregnant women

No re-testing of STD repeaters who are pregnant

No re-testing in urban settings with high syphilis rates

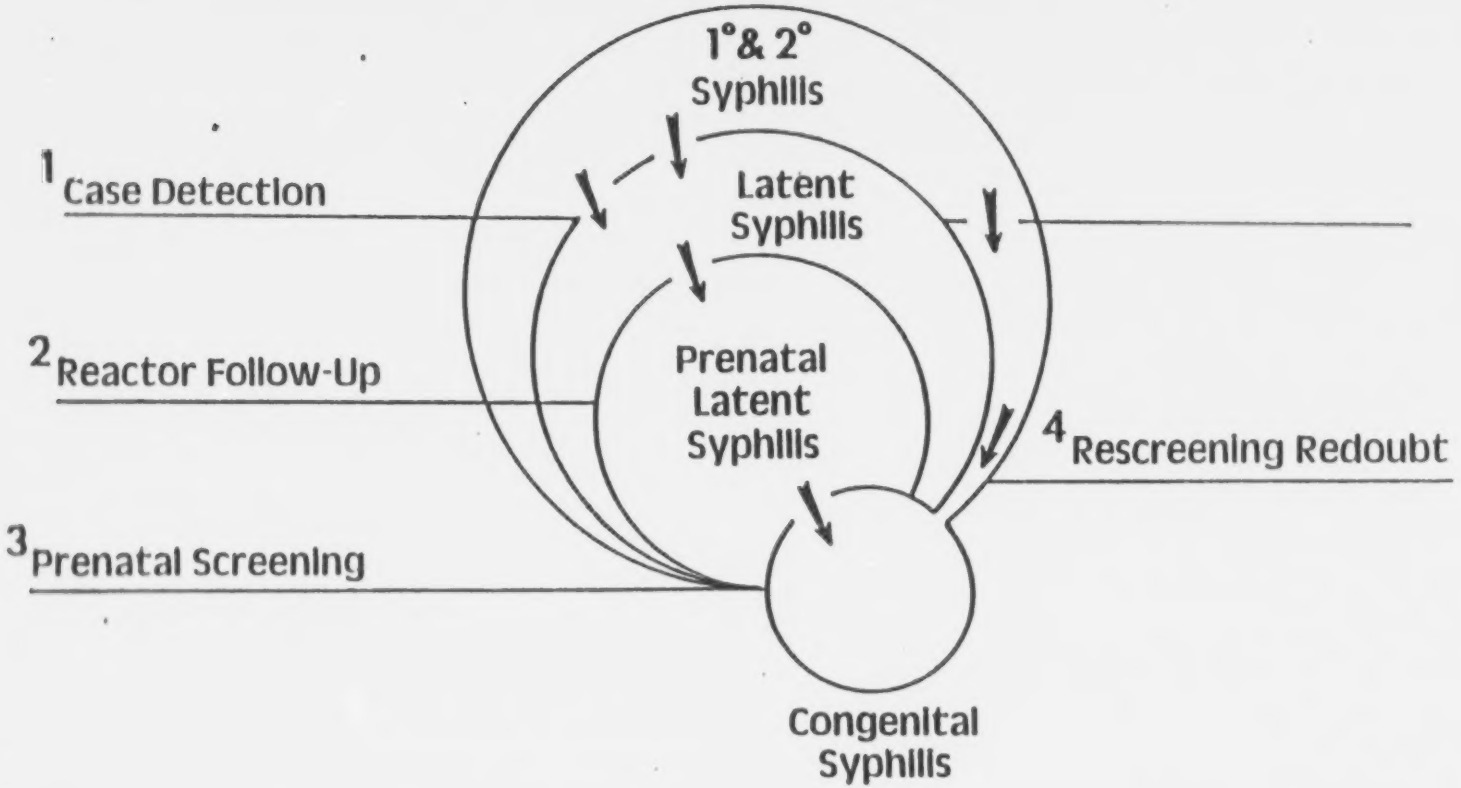
E. FOLLOW-UP OF INFANT

Not appointed to health clinic for periodic exam and case review

No case review by Central Office and local health nurse

No diagnostic referral and treatment plan developed

Lines of Defense Against Congenital Syphilis



VIII-22

DHEC/CH/11/90

Appendix II

ABBREVIATIONS USED

CDC	Centers for Disease Control
VDI	Venereal Disease Investigator
STD	Sexually Transmitted Disease
OB-GYN	Obstetrics-Gynecology
RPR	Rapid Plasma Reagin
MHA-TP	Microhemagglutination Treponema Pallidum Test
CH	Child Health
PE	Physical Examination
STS	Serological Test for Syphilis
CRS	Children's Rehabilitative Services
ENT	Ear, Nose and Throat

TREATMENT OF INFANTS BORN TO WOMEN WHO ARE HEPATITIS B SURFACE ANTIGEN POSITIVE

PROBLEM: Hepatitis B virus is a significant problem in South Carolina. The virus can be transmitted from a mother, who is hepatitis-B surface antigen (HBsAg) positive, to an infant during the birth process. If not treated shortly after birth, 90% of these infants will become chronic carriers of the hepatitis B virus. Approximately 25% of these carriers will die of cirrhosis or hepatocellular carcinoma. They also risk passing the disease to their sexual partners and their offspring.

TREATMENT:

Hepatitis B Immune Globulin (HBIG)		Vaccine	
Dose	Timing	Dose	Timing
0.5 ml IM	within 12 hrs of birth	0.5cc IM	within 7 days*
		0.5cc IM	1 month later
		0.5cc IM	6 months later

* Both HBIG and initial vaccine may be given to newborn at hospital before discharge.

NURSING MANAGEMENT

1. See Maternity Manual for procedure for screening all women who receive prenatal care in DHEC clinics.

2. The State Laboratory notifies the Newborn Screening Office in Central Office (737-4078) of the name, and county of the woman with a positive HBsAg. A ledger entry will be made in Central Office to insure follow-up, and to keep a record of the numbers and location of infants affected. The Newborn Screening Office notifies the Maternity Program. A letter is sent to the county notifying them that they have a patient who is a hepatitis B carrier.

3. The maternity clinic will give the district newborn screening coordinator the name, EDC and probable hospital delivery site of the woman who has a positive test for HBsAg.

4. If the mother is not Medicaid eligible, the newborn screening coordinator will order the Hepatitis B vaccine vial from the Bureau of Preventive Health Services (737-4040) or by the vaccine order form for that child.

5. The district newborn screening coordinator will assure that the hospital nursery is informed:

   a. Of the probable delivery at that hospital of a child at risk for hepatitis B.

   b. That the Bureau of Disease Control will provide or replace the HBIG needed by that child if the child is not Medicaid eligible.

   c. That she or the county child health nurse should be notified of the infant's birth.

6. Within 12 hours of birth, the affected infant will receive HBIG.

7. The nursery will inform the county child health nurse or the metabolic coordinator of the child's birth.

8. If the family desires private pediatric care, arrangements for obtaining the vaccine and follow-up will be negotiated with the physician.

9. The PHN will go to the hospital while the mother and infant are still hospitalized.

   a. To take the vial of Hepatitis B vaccine, if needed, so that the infant may get his first dose in the hospital. (The vaccine can be given any time in the first week of life.)
   b. To confirm the address of the family.
   c. To talk with the mother about the importance of the vaccine and of follow-up care.

10. After the birth of the infant, the metabolic coordinator notifies Central Office Newborn Screening Program of the child's birth and the treatment in the hospital.

11. The infant will be given a child health appointment at the age of one month and six months to receive additional 0.5 ml doses of the vaccine. Other immunizations may be given at the same time. The "perinatal Hepatitis B Follow up and Immunizations" form will be completed and returned to the Division of Immunizations.

12. At age 12 months, serum for AntiHBs and HBsAg will be drawn from the infant. (One red topped tube of blood.)

13. The serology lab slip will be marked test 123 "Diagnostic Profile."

14. Send a copy of the results to the Newborn Screening Program in Central Office.

15. The results will be reviewed by the Children's Health Medical Consultant.

POSSIBLE PATIENT OUTCOMES

Results of blood test	Action
1. Positive for Anti HBs Negative for HBsAG	Discharge from Program.
2. Negative for Anti HBs Negative for HBsAg	Further vaccine may be necessary. Children's Health Medical Consultant will suggest treatment.
3. Anti HBs negative Serum HBsAg positive	Refer to CRS for evaluation.

Perinatal Hepatitis B Follow up and Immunization

Case #_____ County_____ Birthdate_____

Name_____age_____sex____race_____
of index perinatal woman

Address_____Phone_____

Workplace_____Work Phone_____

Estimated Delivery Date_____

Hospital_____

Hepatitis Lab Test Results
HBsAg _____
HBeAg _____
Anti HBcIg _____
Anti HbsIG _____
Anti HBcIgM _____

Signature of person
completing form:_____

Newborn Information:

Date of Delivery _____

Name_____

Date
HBIG _____
administered

Date HB vaccine administered 1._____

2._____

3._____

Household and sexual contact information:

1. Name	Clinic Number	DOB	Race Sex	Phone #	Test Results	Dates of Vaccination 1. 2. 3.

COMMENTS_____

_____

(OVER)

Experimental DHEC BPHS Hepatitis B Form 9/90

STANDARDS OF PRACTICE FOR LEAD PATIENT*

Since lead poisoning/intoxication can impair a child in very subtle ways and these impairments may not be evident until a later time, and because early identification of lead and associated problems is the best way we have of minimizing or preventing impairments, the following criteria are recommended for those patients on our lead caseload.

1. Blood tests (VP's) are up-to-date.

2. Environmental investigation is done within specified guidelines and if the patient moves to a new address, another environmental investigation can be done. Lab reports and reports of environmental investigation are in the record.

3. Nutrition

   - referral is made to nutritionist
   - child is on WIC if financially eligible and <5 years old
   - if a nutritionist is not able to see the child, there is evidence on the chart that a nurse spoke with the caretaker about nutrition needs of the lead patient

4. Referral to social work, if needed.

5. A home visit to be made by the nurse to evaluate the home situation and screen other family members, if needed.

6. A DDST done at least yearly, beginning at or near the time of identification of the lead problem.

7. Evidence on the chart that:

   a. The patient has a source of regular health care.
   b. Problem list is current with patient identified as a lead patient and chelation noted, if done.
   c. The patient has received health education specific to lead and lead hazards.
   d. If the patient has moved to another county, the lead coordinator in that county has been notified and records have been sent.
   e. If the patient is lost to follow-up, documentation shows that attempts (phone calls, letters, home visits) were made to locate the patient.

*Lead patient - A child <6 years of age who has had a venous blood level of ≥25 ug/dl and who is currently on our lead caseload.

VISION SCREENING

INCIDENCE.

5% of children 3-5 yrs have visual problems
25% of school aged children

1/3 of childhood blindness is caused by accidents

50% of children will have visual problems if they have any of these high risk factors

HISTORY.

High risk factors for visual problems in children

-- Have a family history of blindness, cataract, retinoblastoma, albinism, or glaucoma

-- Had a congenital infection (rubella, toxoplasmosis, CMV, herpes, syphilis)

-- Were premature

-- Had oxygen as a neonate

-- Have mental retardation, hearing loss or cerebral palsy

The above should be seen by an ophthalmologist at least once in their life.

School-aged children may have a history of the following:

1. Complaints of aches or pains in the eyes, excessive headaches, dizziness or nausea after close eye work.
2. Squinting, blinking, frowning, facial distortions, constant rubbing of the eyes or attempting to brush away a blur; tilting of the head when seeing; closing or covering one eye when looking or reading.
3. Undue sensitivity to light.
4. Holds objects too close or too far away; frequently changes the distance of objects from near to far.
5. Head thrust forward or body tense when reviewing distant objects.

When reading and writing skills are developed, these signs may also be observed:

1. Inattentiveness during reading; cannot read for long periods without tiring; reads more poorly as time span increases.
2. Tendencies toward reversals of letters and words or confusion of letters and numbers with similar shapes.
3. Constant loss of place in a sentence or on a page.
4. Poor spacing in writing.

OBSERVATION

The eyes should be examined by first looking at the external features of the eyes and the adjacent structures. The pupillary openings should be round and of equal size. The irises should be the same color. The cornea must be clear and bright. The conjunctiva should be clear and transparent with no redness.

The lids should be examined for infections such as sties. The presence of tearing or mattering of the eyes should be noted. Swelling or drooping of the lids should be noted.

Coloboma = defect in section of iris or notch in pupil margin (may involve inner eye).

OBJECTIVE TESTING.

1. The child sees.

   Have the young child fixate or follow an object.

   "Regards face" and follows yarn on Denver II.

   Red Reflex

   Using the ophthalmoscope, view the pupil at a distance of approximately 10 inches. (Darkening the room facilitates viewing the red reflex.) A red or pinkish color is reflected from the fundus through the pupil. In fair skinned children, the color is very red. As the pigment of the skin darkens, the light reflex becomes paler or pinkish gray. This is a test for clarity of the lens.

2. Eyes are aligned.

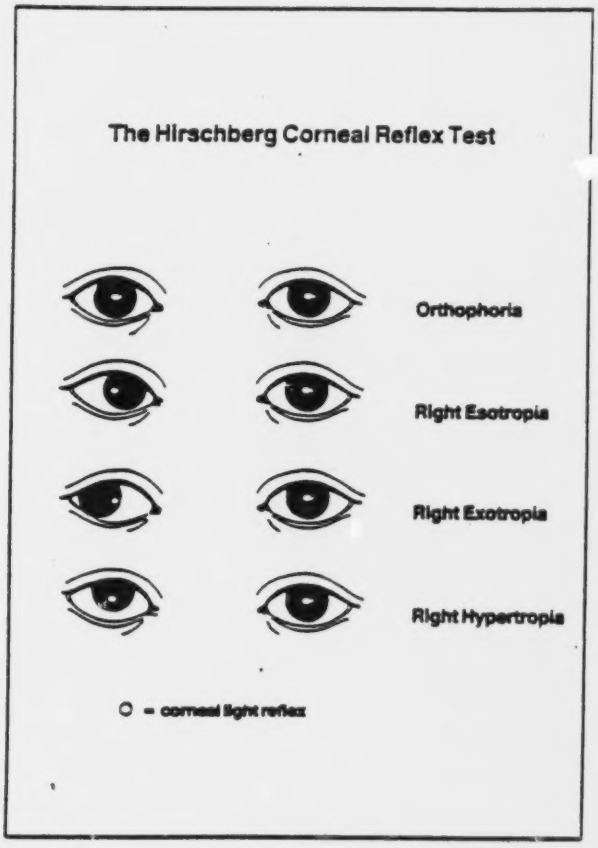
   Hirschberg or Corneal Light Reflex:

   Some eye alignment problems can be detected with the Hirschberg Test. This is a relatively simple test to assess visual alignment in the straight ahead direction of gaze. A pen light should be held approximately 16 inches in front of the eye at the level of the bridge of the nose and observation made of the reflection of the light in the pupils of each eye. The light reflections should be nearly in the middle of each pupil, slightly displaced nasally. The reflections should appear similarly located.

   Cover Test:

   This examination is done by having the child fixate on an object 14-20 inches away. Cover one eye while the child continues to fixate on the object. Continue to cover for 5 seconds, if possible. Uncover the eye and watch for movement or realignment in the uncovered eye. This is a test for strabismus. Movement or realignment of an eye while the child continues a fixed gaze, is abnormal.

CORNEAL LIGHT REFLEX (HIRSCHBERG)
(continued)



The position of the light reflex on the cornea or pupil may be used to detect strabismus. (a) Since light reflexes are symmetrical in both eyes, no strabismus is present. (b) an esotropia exists in the right eye. The light reflection is in the outer edge of the iris, as the eye is turned inward. (c) an exotropia exists in the right eye. The light reflex is in the inner edge of the iris, as the eye is turned outward. (d) a hypertropia exists in the right eye. The light reflection is in the lower edge of the iris as the eye is turned upward.

There are three problems to avoid in this test.

1. Lack of attention the child pays to the target object.

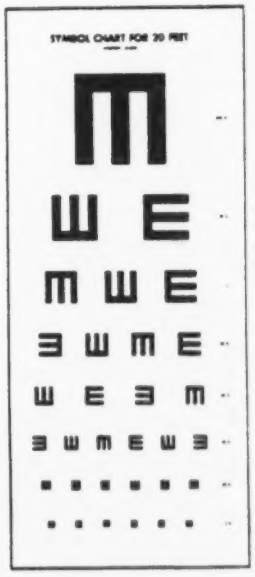
2. Misinterpretation of eye movement. If the child is distracted, he may glance about the room, and this will make the job more difficult. A constant reminder to watch the target object will provide more reliable results.

3. Moving the cover too quickly, not allowing the child to view the target with both eyes simultaneously between covering each eye.

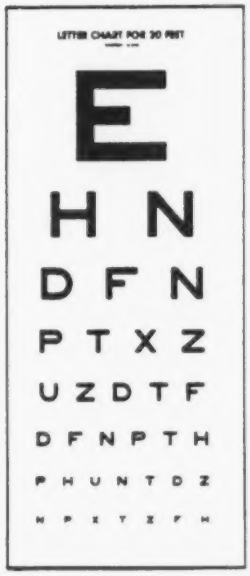
3. Eye movements are synchronous:

Following movements of the eye should be tested by moving the light vertically, horizontally, and diagonally noting the positions of the light reflections in the pupils. The patient should follow the light equally with both eyes in all directions of gaze.

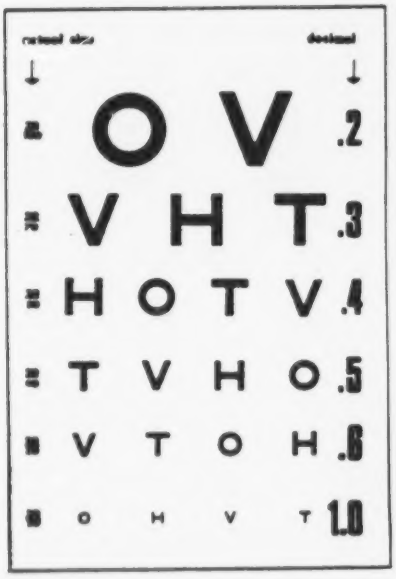
SCREENING CHARTS



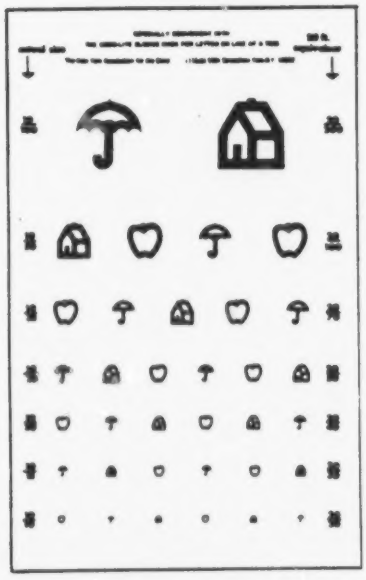
Snellen "E" Chart



Snellen Letter Chart



The HOTV or
Matching Symbol Test



Faye Symbol Chart

The Linear Method

VISUAL ACUITY

Recommended Tests and Methods

Snellen Charts

- Snellen Letters - for children who can read the alphabet.
- Snellen E - for preschoolers and for children in other grades who do not know the alphabet or are suspected of being mentally retarded.

Alternative Tests for Distant Visual Acuity

Alternative tests to the Snellen E, which depends on the development of directional sense, may be useful to test a child who is better able to respond verbally or by matching. The HOTV, Matching Symbol or Allen Pictures are acceptable options for screening very young, mentally retarded or otherwise hard to screen children.

Preferred Method

The linear method which exposes a whole line of symbols at one time is recommended for children of all ages regardless of test used. Use pointer to indicate, by pointing from below to the letter or symbol the child is to identify.

The isolated method of exposing the symbol or letter singly may only be used if the child cannot respond to linear method. Use of the isolated method must be documented when recording results on the record and on referral forms.

Patients Wearing Glasses

Patients wearing glasses or contact lenses are screened with prescribed correction and documented on the record (e.g., "20/40 with glasses"). Document the date of last professional eye examination, date of last correction or date for the next scheduled exam.

This information, as well as observation by the screener, is important in determining the need for a referral. Sometimes a child under regular care will not be able to pass the screening test, but has the best possible correction. On the other hand, a child who has not seen an eye doctor in over a year may need to be seen. The results of the screening may need to be discussed with the parent in order to determine the appropriateness of a referral.

PROCEDURES FOR TESTING

Snellen Chart

Explanation of test procedures should be given before screening begins, as needed, to assure that the standard procedure is followed.

1. Hang the chart so the 20-30 foot lines are at the child's eye level.

2. Provide adequate light for the chart and position it so there is no glare.

3. Measure distance 20 feet or 10 feet from the chart depending on the chart used. Child stands with heels on the line. Paper markers in the form of foot prints, squares, etc., may be pasted to the floor to help young children assume correct foot position. If the child sits in a chair, the back legs of the chair should touch the 20 foot line.

4. Provide each child with a paper cup, 3 x 5 card, or vision occluder to cover the eye not being tested. It is very important to ensure total occlusion of eye during entire test.

5. Each eye is tested separately, which eliminates the need to test them together.

6. The child who wears glasses should be screened only with his glasses on. If he/she does not have glasses with him/her, defer the screening; reschedule screening.

7. Begin at the 40 foot line of the chart. Use a pointer or pencil, point to each symbol on the line from left to right. (This is the order children learn to read.) If the child reads a majority of symbols on a line, he/she sees the line satisfactorily.

8. If the child "passes" the 40 foot line, have him read the 30 and 20 foot lines or the last line he can read. Record the last line he reads. If he fails to read the 40 foot line, begin at the top of the chart and move downward until you identify the last line he can read all the symbols.

9. Visual acuity is always stated as a fraction. The top number is the distance in feet the child stands from the chart (always 20). The bottom of the fraction represents the last line he read correctly. The adult with good (average) vision can read the 20 foot line from 20 feet and so is said to have 20/20 vision. Recording standard remains the same (20/20) even when using the 10 foot chart as the conversion is built into the chart.

Preschool E Chart Testing

Between 3 years and the age they can read the alphabet, children can have vision tested by using the preschool E chart. This chart is also helpful in testing children with mental retardation or children who speak a foreign language. The procedure is similar to that for the standard Snellen chart.

1. The child should stand 20 feet from this chart. He should read first with the right eye, then with the left, as with the standard testing. Young children do not understand the importance of not pressing the card against their eye or of not "cheating" by peeking, so a second person is often needed to hold the occluder card for a child of this age.

2. It is helpful to compare the E to a table with three legs or to fingers and ask which way the legs or fingers are pointing. Children of three are familiar with tables and fingers, but E's are strange symbols. Tell the child to point with the entire arm and hand in the direction the legs or fingers point so you do not confuse his motions.

3. Begin at the 40 foot line, as with the standard Snellen chart, and work downward until the child passes all lines or cannot read the majority of symbols on a line.

Three Commonly Made Mistakes in Visual Acuity Testing:

1. Three kinds of mistakes are commonly made in visual acuity testing, especially by the novice. The first problem is with peeking around the occluder. Those with an amblyopic eye will often try to "sneak" around the occluder by shifting the head around so that the chart can be viewed between the occluder and the nose. To avoid this, several precautions should be taken, namely: (a) make sure the occluder is held firmly at all times against the side of the nose; (b) memorize the chart or reproduce a copy of the chart on a hand held card so that you can observe the child continuously while the chart is being read, and (c) be alert to squinting, undue head motion, moving of the occluder and struggling with reading a particular line.

2. The second problem occurs with children who do not reach the chart as far down as they are capable of. Remember that as long as the chart is being correctly read, the individual should be encouraged, even urged, to continue. Do not fail the child on a line until a genuine effort is made to read the line without success. Many false positives are due to the subject "giving up" too quickly in the attempt to read to the pass line.

3. A third problem is allowing the subject being tested to press the occluder against the covered eye which can induce a change in the size and shape of the globe resulting in temporary refractive error. Avoid this by carefully instructing in how to hold the occluder and observing how the occluder is held.

TITMUS VISION TESTER

Another useful method for testing the vision of children is with a Titmus Vision Tester. The child looks into the eyepieces of a machine. Alphabet letters or preschool E's that he must identify are projected onto a well-lighted screen in the machine. Closed vision testers such as the Titmus have an advantage over wall charts in that the child is less easily distracted during testing and because he cannot see the vision chart beforehand, he cannot memorize letters and cheat in order to pass. All children need good orientation to vision testing. It should be stressed with them that this is not a test in the usual sense of the word. A child is not less than others if he fails it; as important as good vision is to all aspects of life, he is foolish if he tries to cheat and convince you he has better vision that he actually has.

VISION REFERRALS.

Any high risk child up to age 1 year, if they have not seen ophthalmologist.

One line difference between acuity in eyes if using the isolated symbol technique.

Two line difference between acuity in eyes if using linear technique.

Up to age 5 years	20/50 or worse
5 to 8 years	20/40 or worse
Above 8 years	20/30 or worse

Intermittent strabismus after age 3-6 months, and any fixed deviation

Failure of Red Reflex, Hirschberg, Cover, ocular movement test

Recent eye injury

Recurrent sties

Ptosis, nystagmus, crusting or drainage from eyes

SCREENING OF HANDICAPPED STUDENTS:

The importance of school and preschool vision screening for handicapped students cannot be overemphasized. Vision plays a major role in special education programs for these students, and these children have enough difficulty in learning without the extra handicap of poor vision. Students with handicaps are entitled to the same services of screening, referral and treatment as their non handicapped peers.

Special education students should be screened on an annual basis. Each year, these students should be screened through observation and the administration of near acuity and distance acuity. Tests for color deficiency, depth perception, cover/uncover, near point of convergence and corneal light reflex should be administered on the same schedule as non handicapped students.

Whenever possible, special education students should be screened in the same manner as non handicapped students. For those students whose mental and/or physical handicaps prevent them from performing standard screening tests, the recommended alternative screening tests should be used. Students who are unable to perform on any acuity screening tests should be referred for a professional eye examination.

Many handicapped students are more difficult to test than other students. However, vision screening, referral and follow-up are no less important for these students. Therefore, every effort should be made to adequately screen all preschool and school-aged handicapped students.

The same students who are difficult-to-test will probably be difficult-to-examine when referred for professional eye care. Screeners may need to assist the parents in locating an ophthalmologist or optometrist who is willing to examine handicapped patients. Additionally, screeners can provide suggestions to teachers and parents to prepare handicapped students for an upcoming eye examination. The screener may also need to provide additional follow-up services for the handicapped such as training programs to teachers and parents for the wearing and care of glasses. Finally, the screener may need to explain the results of an eye examination to teachers and parents so that they can better plan for the educational needs of these students.

HEARING SCREENING

Ear

I. Review Anatomy and Pathophysiology of Otitis Media.

II. Exam

A. Pinna

- Note size, shape and position of pinna.
- Inspect and palpate skin on and around the ear for signs of infection, lesions and masses (non-tender, palpable nodes are normal in children).

B. Canal

- Inspect with otoscope for lesions, discharge, foreign bodies, swelling or inflammation.
- Use caution when inserting the otoscope in case above problems are present.

C. Eardrum

- Inspect with otoscope using largest speculum that ear will accommodate.
- To best visualize drum, pull pinna down and forward for infants; up and back for older children.
- Examine older children in their mother's laps with the mother holding the child.
- Examine infants in the supine position on the examining table. Have the mother assist by holding the infant's arms back and down over the head. Immobilize the infant's head by bracing your forearm (of the hand not using the otoscope) against it.
- Brace the hand holding the otoscope against the infant's or child's head so that if the head moves suddenly, the otoscope will not injure the ear.
- Move the otoscope to see the entire drum (only a portion is visible through the otoscope at one time.)
- Inspect for:

1. Color - normal = pearly gray
   abnormal = amber (serous fluid)
   = dull without light reflex and no movement with insufflation (serous fluid)
   = air bubbles (serous fluid)
   = fluid line (serous fluid)
   = red (inflammation or pus behind drum)

2. Landmarks

- Note light reflex, if present (the presence of the light reflex does not rule out ear disease); the entire drum must be inspected.

- Note the position of the malleus; it should normally be in the 5 or 7 o'clock position depending on if the left or right ear is being examined. Foreshortening of the malleus and abnormal position (3:30 or 8:30 position) as well as prominence of the short process of the malleus indicates retraction.

3. Integrity

- Use a pneumatic otoscope.
- Obtain a good seal so that air does not leak out around the sides of the speculum.
- Observe the drum to see if it moves in response to air pressure changes.

III. Monitoring and Referral Criteria

- Refer any child with abnormally shaped or positioned ears for further evaluation to rule out associated anomalies.
- Refer any mass or tenderness in the mastoid area.
- Refer all patients with discharge, foreign bodies or external otitis.
- Refer all red,* fluid filled or immobile ear drums.
- If a PNP or a tympanometer is available,** you may monitor ears with serous fluid (not red) monthly to see if fluid resolves, if not resolved in three months, then refer. Hearing should be monitored also at each recheck visit. If hearing loss is present, or child is at high risk (known hearing loss, speech language delay, cleft palate, Down's Syndrome) refer after recheck in 2 weeks - 4 weeks.

* Children whose ears are red from crying can be differentiated from those with active infection by the presence of the light reflex and normal mobility of the drum. Fiery red drums are infected and should not be insufflated as this will cause pain to the child.

** Studies done on the course of otitis media indicate that after an acute episode of otitis media, 40% of children will still have fluid in 1 month, 20% will still have fluid in 2 months and 10% will still have fluid in 3 months.

PROCEDURES FOR HEARING APPRAISAL

Hearing loss in children may lead to faulty speech and language development, learning handicap, behavior and social problems, and possibly serious illness. Early detection is vital for prompt remediation and rehabilitation.

Schedule: A complete hearing appraisal should be performed at each comprehensive visit and at any other visit if indicated.

The Hearing Appraisal consists of four parts:

1. History: This should include questions which present a picture of the individual's ear history and hearing and speech development.

   Here are examples:

   Ear History - Has your child ever had trouble with his ears? What kind of trouble? (Draining ears, complaints of earaches, etc.) How often has this been noticed? When is the last time this occurred? How has this been treated?

   Hearing - Do you feel your child hears adequately? How do you know? How long have you noticed this problem? Are there any times when you notice this more than other times? etc.

   Speech History - Reference can be made to "Please Talk To Me" pamphlet. The nurse should incorporate the appropriate age level questions into her history obtaining the information from the child or the mother.

2. Otoscopic Examination.

3. Hear Kit should be used from birth until the child can successfully use the audiometer.

4. Audiometric Screening - Screening should be done/attempted on all children 4 years or older. Failure of the Speech/Language section of the Denver Developmental Screening Test, the Denver Articulation Screening Exam (DASE) are additional indicators for referral.

5. Infants who have a history of any of the following are at risk for hearing impairment and should be followed by the county health department until they are six (6) months or over and pass all five (5) items on the Hear Kit.

   a. Family history of hearing loss before age 50 (family means close relatives).

   b. A maternal viral infection in pregnancy.

   c. Defect of ear, ear lobe, nose, lip or palate.

   d. Birth weight under 1500 g.

   e. Bilirubin above 20 mg/dl.

   f. Bacterial Meningitis especially H. Flu.

   g. Severe asphyxia which may include infants with Apgar scores of 0-3 or who fail to institute spontaneous respiration by 10 minutes and those with hypotonia persisting to two hours of age.

   h. Multiple congenital anomalies.

SCREENING WITH THE HEAR-KIT

Infants and Toddlers. The Hear-Kit is designed for testing the hearing of infants and toddlers too young or immature to be evaluated with the audiometer. (Audiometric screening is preferable to the Hear Kit and should be attempted when feasible.)

Birth Through Five Months.

Select the quietest room available. Let the baby lie on an examining table or in his mother's arms.

With the free arm, hold the horn six inches from the baby's ear. When the baby is quiet and watching the ball, or asleep, squeeze the horn. Be sure not to direct the end of the horn into the baby's ears, as some air would be felt this way. If any of the three reflex responses is noted, it is a pass.

If no response is noted, change to the other side and present the horn in the same way as before. If any of the three responses described is noted, it is a passing score.

Response:

In these early months, the only response that can be depended upon is a reflexive response to loud sound. The auditory reflexes that can be expected at this age are:

A startle (a jump, or a moro-like reflex, immediately following the sound).

An eye-blink (a sudden constriction of the eyelids immediately following the sound).

An arousal from sleep within two seconds of sound. (Any eye movement accompanied by a movement of any limb.)

Interpretation:

One passing ear is sufficient for a pass grade on this test because the intensity of the sound may not differentiate ears.

A pass grade indicates that there is not severe hearing loss. It does not ensure that there is not a mild or moderate hearing loss under 50 or 60 dB. Only definitive testing in a sound room can determine mild losses at this age.

A failure or questionable response is a signal that the infant should be rescreened in two weeks and referred for evaluation if the child continues to fail the screening.

Six Months to Age When Child Can Be Tested with Audiometer.

Technique:

Select a very quiet room. Position the baby on his mother's lap, leaning comfortably against her chest or sitting upright.

Two-Person Procedure.

Have one person sit in front of the child and keep him focused in front.

The other person is behind the baby with the noise makers. Kneeling down, this person presents the noise makers one yard from the baby's ear. Make sure the baby cannot see with his peripheral vision. The following order of presentation may be followed:

1. Right side: bell
2. Left side: key rattle
3. Right side: squeeze toy
4. Left side: egg rattle

The observer records responses.

Coming carefully behind the child, present the loud horn six inches from his right ear. An eye blink or startle should be observed. Repeat on the other side. A response should be observed on at least one side.

This test is insurance against observing false responses in a deaf child. Deaf children are usually visually alert and scan their environment constantly. It might thus be easy to believe that a deaf child was turning his head toward a sound when he was really scanning. But a deaf child will not give a reflexive startle or eye-blink to the loud sound. A failure to give a reflex response is a signal to recheck the child.

Interpretation: As in "One Person Procedure" below.

One-Person Procedure.

With the baby seated on his mother's lap, stand behind the baby and present the noise makers at a distance of one yard from the ear. Be sure the baby cannot see with peripheral vision.

Proceed with the same testing protocol as described for the two-person technique.

For the startle test, place the horn at a distance of six inches from the child's ear and present the sound. An eye-blink or startle should be observed. Repeat on the other side. A failure to give a reflex response on at least one side is a signal to recheck the child.

Interpretation:

A head turn toward the sound should be seen for every noise maker on each side in order for the baby to be passed for hearing. Failure to respond to any one noise maker is a hearing failure. Failures should be rescreened in two weeks and referred if they continue to fail.

AUDIOMETRIC SCREENING

The Young or Hard-To-Test Child.

Screening young or hard-to-test children requires a different approach than that used with older children. It is necessary to condition these children to respond appropriately to the tone. Here is a suggested procedure.

1. Seat the child so that he faces you.

2. Tell him he is going to get to ring the bell every time he hears the sound.

3. With the earphones split and off of the child's head, turn the audiometer up to 100 db 1000 Hz and present the tone.

4. Ask the child if he heard the sound. The child must agree that he heard the sound. It is impossible to condition a child to respond to a sound he cannot hear. If he says he doesn't hear it, go to a different sound at 2000 Hz or 4000 Hz.

5. Tell the child that every time he hears the sound he can ring the bell.

6. Take the child's hand with the bell in it in yours and present the tone. Help the child ring the bell.

7. Repeat #6 until you are sure the child has caught on. (He tries to ring the bell by himself when the tone is presented.) Reward the child verbally when he makes the correct response.

8. Tell the child he can do it by himself now and present the tone. If he rings the bell appropriately, you can proceed to #9. If he seems confused or unresponsive, go back to #5 and repeat the conditioning procedure.

9. Place the earphones on the child (Red-right, Blue-left).

10. Turn the audiometer down to 60 db at 1000 Hz in the right ear and ask the child if he's ready to ring the bell himself.

11. Present the tone at 60 db.

12. Present the tone at 40 db.

13. Present the tone at 20 db.

14. You are now ready to start the actual screening procedure.

15. Seat the child so that his back is to you and he cannot see you or your manipulation of the audiometer and complete the screening at 20 db at 1000 Hz, 2000 Hz and 4000 Hz in each ear. You may go up to 25 db at 4000 Hz only. Failure is considered one miss in

either ear. Children failing the screening should be rescreened immediately and if still failing, rescreened in two weeks. If the child continues to fail, he should then be referred.

Here are some additional suggestions for screening the young or hard-to-test child:

-- Allow the child to watch other children or his mother being tested before he is tested.

-- Always make it a fun game.

-- Praise the child promptly for correct responses.

-- Try to do the test as quickly and crisply as possible. Young children tire and bore easily.

-- Always repeat the conditioning procedure any time the child seems unsure of what to do or is unresponsive.

-- Do not ask the child if he hears the tone when he fails to ring the bell. You may not accept a "yes" answer as a pass. He must give independent, uncoached responses for the test to be accurate.

The Older Child

1. Explain to the child what you're going to do.

2. Ask him to raise his hand when he hears the sound.

3. Test one ear at a time with the child seated facing away from you.

4. Turn to 1000 Hz at 40 db so child becomes familiar with sound.

5. Turn to 20 db and test 1000 Hz, 2000 Hz and 4000 Hz.

6. You may go up to 25 db at 4000 Hz if child fails at 20 db.

7. Repeat 3, 4 and 5 in second ear. If a child misses any sound, repeat the test at the same visit. If he fails again, rescreen in two weeks. If the child continues to fail, then refer.

REFERRALS

Any child failing the Hear Kit or Audiometer screening should be referred for further evaluation. Referral is to primary care physician, ENT specialist or audiologist as appropriate. See CRS Manual if referring to CRS for evaluation or treatment.

SPEECH/LANGUAGE SCREENING

Speech/Language development begins in infancy and should be assessed at each comprehensive visit or at any visit that a problem is suspected. Early detection is important for optimal remediation. The speech appraisal consists of:

1. Appropriate, age-level questions from "Please Talk To Me."

2. The Language Section from the Denver II Screening Manual.

3. Denver Articulation Screening Examination (DASE) which is administered once between age 2 1/2 and age 6.

4. Observation by the nurse to see if the child displays any of the faulty speech/language patterns listed in the "When to Worry About Speech and Language Development" guide (following page).

Any child failing any of the above components should be referred to a Speech/Language Pathologist for evaluation. See CRS Manual if referring to CRS for evaluation or treatment.

5. All caregivers should be given a copy of "Please Talk To Me" at appropriate age visits. The importance of speech and language stimulation should be discussed.

"WHEN TO WORRY" about Speech and Language Development

1. When there is weaknesses or muffled quality in early crying or vocalizations.
2. When a child has produced reflexive vocalizations but becomes silent at about six to nine months.
3. When a child of 12 months is not vocalizing to gain attention.
4. When the child can't synchronize vocalization with exhalation.
5. When a child of 18 months has not acquired a meaningful word (other than mama or dada).
6. When a child sounds as if he is vocalizing through the nose.
7. When a child sounds as if he has a continual cold (hyponasality).
8. When a child of 2 1/2 years is not beginning to combine words (at least two) to form the rudiments of a sentence.
9. When a child of 2 1/2 years can't repeat single one syllable words.
10. When a child of 3 years is generally unintelligible to strangers.
11. When a child's voice is monotone, extremely loud or extremely soft.
12. When a child is noticeably dysfluent.
13. When a child makes bizarre statements routinely.
14. When a child produces echolalia.
15. When a child's voice quality is poor (hoarse, stridor) or when the quality is not appropriate for the child's age.
16. When sentence structure is noticeably faulty at age 5 years.
17. When the child is omitting, substituting or distorting any speech sound past age 7 years.
18. When the child has acquired good speech but the speech is now breaking down.

Gale Normal Coston, Ed.D.
University of South Carolina

DENVER ARTICULATION SCREENING EXAM (DASE)

The DASE was designed as a screening tool to detect articulation problems in children ages 2 1/2 to 6 years.

Administration.

The test consists of 22 words with 30 sound elements upon which the child is tested and scored. The child is asked to say the words after the examiner. The specific underlined sounds or blends are rated, not the entire word.

Scoring.

Scoring is determined on the backside of the DASE screening form. (See form on following pages.) The raw score line (number of correct sounds) is matched with the column denoting the child's age. Where the line and column meet, the child's percentile rank is given. The child's spontaneous speech is also rated in terms of intelligibility.

Sounds or Blends.

Abnormal--percentiles above the heavy line
Normal--percentiles below the heavy line

Intelligibility of Spontaneous Speech.

2 1/2 years:

Abnormal--not understandable
Normal--"Easy" or understandable 1/2 of the time

3 years:

Abnormal--Understandable 1/2 of the time or not understandable
Normal--Easy to understand.

Interpretation of Results.

Rate the child's total test results as follows:

Normal--Normal on DASE and intelligibility
Abnormal--Abnormal on DASE and/or intelligibility

Follow-up Recommendations.

Abnormal scorings should be rescreened within two weeks to one month before a referral for further evaluation is made.

For additional instructions and/or information:

The Denver Articulation Screening Exam--Instruction Booklet Amelia F. Drumwright--University of Colorado Medical Center, 1971

For further information, contact Marie Thompson, Speech and Hearing Consultant in Central Office.

DENVER ARTICULATION SCREENING EXAM
for children 2 1/2 to 6 years of age

Instructions: Have child repeat each word after you. Circle the underlined sounds that he pronounces correctly. Total correct sounds is the Raw Score. Use charts on reverse side to score results.

NAME

HOSP. NO.

ADDRESS _____

Date: _____ Child's Age: _____ Examiner: _____ Raw Score: _____
Percentile: _____ Intelligibility: _____ Result: _____

1. table	6. zipper	11. sock	16. wagon	21. leaf
2. shirt	7. grapes	12. vacuum	17. gum	22. carrot
3. door	8. flag	13. yarn	18. house	
4. trunk	9. thumb	14. mother	19. pencil	
5. jumping	10. toothbrush	15. twinkle	20. fish	

Intelligibility: (circle one) 1. Easy to understand 2. Understandable 1/2 the time. 3. Not understandable 4. Can't evaluate

Comments:

Date: _____ Child's Age: _____ Examiner: _____ Raw Score _____
Percentile: _____ Intelligibility: _____ Result: _____

1. table	6. zipper	11. sock	16. wagon	21. leaf
2. shirt	7. grapes	12. vacuum	17. gum	22. carrot
3. door	8. flag	13. yarn	18. house	
4. trunk	9. thumb	14. mother	19. pencil	
5. jumping	10. toothbrush	15. twinkle	20. fish	

Intelligibility: (circle one) 1. Easy to understand 2. Understandable 1/2 the time. 3. Not understandable 4. Can't evaluate

Comments:

Date: _____ Child's Age: _____ Examiner: _____ Raw Score _____
Percentile: _____ Intelligibility: _____ Result: _____

1. table	6. zipper	11. sock	16. wagon	21. leaf
2. shirt	7. grapes	12. vacuum	17. gum	22. carrot
3. door	8. flag	13. yarn	18. house	
4. trunk	9. thumb	14. mother	19. pencil	
5. jumping	10. toothbrush	15. twinkle	20. fish	

Intelligibility: (circle one) 1. Easy to understand 2. Understandable 1/2 the time. 3. Not understandable 4. Can't evaluate

Comments:

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DHEC/CH/11/90

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To score DASE words: Note Raw Score for child's performance. Match raw score line (extreme left of chart) with column representing child's age (to the closest previous age group). Where raw score line and age column meet number in that square denotes percentile rank of child's performance when compared to other children that age. Percentiles above heavy line are ABNORMAL percentiles, below heavy line are NORMAL.

PERCENTILE RANK

Raw Score	2.5 yr.	3.0	3.5	4.0	4.5	5.0	5.5	6 years
2	1							
3	2							
4	5							
5	9							
6	16							
7	23							
8	31	2						
9	37	4	1					
10	42	6	2					
11	48	7	4					
12	54	9	6	1	1			
13	58	12	9	2	3	1	1	
14	62	17	11	5	4	2	2	
15	68	23	15	9	5	3	2	
16	75	31	19	12	5	4	3	
17	79	38	25	15	6	6	4	
18	83	46	31	19	8	7	4	
19	86	51	38	24	10	9	5	1
20	89	58	45	30	12	11	7	3
21	92	65	52	36	15	15	9	4
22	94	72	58	43	18	19	12	5
23	96	77	63	50	22	24	15	7
24	97	82	70	58	29	29	20	15
25	99	87	78	66	36	34	26	17
26	99	91	84	75	46	43	34	24
27		94	89	82	57	54	44	34
28		96	94	88	70	68	59	47
29		98	98	94	84	84	77	68
30		100	100	100	100	100	100	100

To Score intelligibility:

	NORMAL	ABNORMAL
2 1/2 years	Understandable 1/2 the time, or, "easy"	Not Understandable
3 years and older	Easy to understand	Understandable 1/2 time Not understandable

Test Result: 1. NORMAL on Dase and Intelligibility = NORMAL

2. ABNORMAL on Dase and/or Intelligibility = ABNORMAL

* If abnormal on initial screening rescreen within 2 weeks. If abnormal again child should be referred for complete speech evaluation.

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Office of Public Health Nutrition

Policy: Guidelines for Referral to the Nutritionist

Nutrition is related to all aspects of public health including prevention, wellness and improved health status. Individual program guidelines will determine patients to be referred to the nutritionist. Each district is responsible for prioritizing nutritional referrals based on severity of the patient's need and staffing resources in consultation with the Programs and the Office of Public Health Nutrition. A copy of the District's referral guidelines will be kept on file with the District Director of Nutrition, Contact Nutritionist and/or District's Standing Orders.

OFFICE OF PUBLIC HEALTH NUTRITION

GUIDELINES FOR REFERRING PATIENTS TO NUTRITIONIST

The goal of nutrition services is to promote health by achieving and maintaining optimal nutritional status throughout the life cycle. Nutrition services are an integral part of all health care. As we strive to provide integrated and quality health care, the Office of Public Health Nutrition has identified medical conditions that benefit from nutritional intervention. These conditions are not listed according to priority. This list of conditions is not comprehensive.

When a referral to a Nutritionist is questionable or a nutritional problem not listed is identified, consult with a Nutritionist about referral.

HIGH RISK FACTORS FOR REFERRAL TO A NUTRITIONIST

Infants 0 to 1 year of age

1. Anatomical/Physiological conditions, e.g., cleft lip and/or palate, esophageal strictures
2. Chronic diseases with nutritional implications, e.g., renal, liver, heart
3. Cystic fibrosis
4. Diagnosis of AIDS
5. Failure to gain weight or weight loss
6. Hct $\leq$ 33% or Hgb $\leq$ 11 mg infants $\geq$ 6 months of age
7. Infants with special health care needs which interfere with their normal functioning and development
8. Medically diagnosed food allergy or intolerance
9. Hyperalimentation and tube feedings
10. Inborn errors of metabolism, e.g., PKU, MSUD
    Other genetic disorders with implications for abnormal growth, e.g., hypothyroidism, Prader-Willi, Marfan's syndrome
11. Low Birth Weight < 2500 gm
    Very Low Birth Weight < 1500 gm
12. Malabsorption syndromes, e.g., necrotizing enterocolitis, short gut
13. Medical diagnosis of failure to thrive
14. Metabolic disorders with nutritional implications, e.g., diabetes mellitus
15. Pica
16. Special formulas requiring designated nutritionist's approval
17. Weight/length < 5th percentile; length/age and weight/age < 5th percentile
18. Weight/length >95th percentile
19. Weight loss evidenced by change in one or more growth channels below and away from the 50th percentile weight/length

Children one to ten years of age

1. Blood lead $\geq$ 25 ug/dl
2. Children with special health care needs which interfere with their normal functioning and development

3. Chronic disease with nutritional implications, e.g., renal, liver, heart
4. Cystic fibrosis
5. Decubitus ulcer with poor rate of healing
6.

Age (years)	Hgb	Hct
1 - < 2	11.0 gm	33.0%
2 - < 5	11.2 gm	34.0%
5 - < 8	11.4 gm	34.5%
8 - 12	11.6 gm	35.0%

7. > 15-18 months HIV seropositive (including diagnosis of AIDS)
8. Hyperalimentation (TPN) and tube feedings
9. Inborn errors of metabolism, e.g., PKU, MSUD
10. Malabsorption syndromes, e.g., necrotizing enterocolitis, short gut
11. Medical diagnosis of failure to thrive
12. Medically diagnosed food allergy or intolerance
13. Metabolic disorder with nutritional implications, e.g., diabetes mellitus
14. *Overweight - weight for length > 95th percentile; weight/height > 95th percentile
15. Pica
16. Unrepaired cleft lip and/or palate
17. Weight/length or weight/height < 5th percentile; height/age and weight/age < 5th percentile
18. Weight loss evidenced by change in one or more growth channels below and away from the 50th percentile weight/height

Adolescents 11 to 18 years of age

1. Adolescents with special health care needs which interfere with their normal functioning and development
2. Chronic diseases with nutritional implications, e.g., renal, liver, heart
3. Cystic fibrosis
4. Decubitus ulcer with poor rate of healing
5. Gestational Diabetes
6.

Age (years)	Hgb	Hct
12 - < 15	11.8 gm	35.5%
15 - < 18	12.0 gm	36.0%
≥ 18	12.0 gm	36.0%

7. HIV seropositive (including diagnosis of AIDS)
8. Hyperalimentation (TPN) and tube feedings
9. Inborn errors of metabolism, e.g., PKU, MSUD
10. Malabsorption syndromes, e.g., short gut
11. Metabolic disorders with nutritional implications, e.g., diabetes mellitus
12. *Overweight > 150% of standard based on height/weight chart
13. Pica
14. Pregnant teenagers ≤ 4 years post menarche
15. Prenatal weight gain
    < 2# of weight gain per month in second and third trimester; excessive weight gain > 2# per week; any weight loss
16. Pre-pregnancy weight > 135% of standard based on height/weight chart
17. Pre-pregnancy weight < 90% of standard based on height/weight chart
18. Underweight < 90% of standard based on height/weight chart

Adults 19 years of age and older

1. Adults with special health care needs which interfere with their normal functioning and development
2. Chronic disease with nutritional implications, e.g., renal, liver, heart
3. Cystic fibrosis
4. Decubitus ulcer with poor rate of healing
5. Diet prescription with multiple restrictions ≥ 3
6. **Elevated serum cholesterol
7. Gestational Diabetes
8.

Prenatal	Hgb	Hct
1st trimester	≤ 12.2 gm	≤ 33%
2nd trimester	≤ 11.6 gm	≤ 32%
3rd trimester	≤ 12.1 gm	≤ 33%

Postpartum & Breastfeeding	Hgb	Hct
12 - 14.9 years	12.0 gm	36.0%
15 - 17.9 years	12.0 gm	36.0%
≥ 18 years	12.0 gm	36.0%

9. HIV seropositive (including diagnosis of AIDS)
10. Hyperalimentation and tube feedings
11. Malabsorption syndromes, e.g., short gut
12. Inborn errors of metabolism, e.g., PKU
13. Metabolic disorders with nutritional implications, e.g., diabetes mellitus
14. *Overweight > 150% of standard based on height/weight chart
15. Prenatal weight gain
    < 2# of weight gain per month in second or third trimester; excessive weight gain > 2# per week; any weight loss
16. Pica
17. Pre-pregnancy weight > 135% of standard based on height/weight chart
18. Pre-pregnancy weight < 90% of standard based on height/weight chart
19. Underweight < 90% of standard based on height/weight chart

* At request of patient/caretaker
** Refer to CHP Standard

GUIDELINES FOR CHILD HEALTH REFERRALS TO SOCIAL WORK

Social work services are provided in a multidisciplinary setting and the entire team is responsible for the identification of at risk groups according to established guidelines. Thus, the primary focus of the following guidelines is directed toward the identification of at risk groups and specific risk criteria which may indicate the need for direct social work intervention. In addition, social work can assist families with exploring the normal crises (addition of a new infant into the family, preparation for school, etc.) which occur as a part of healthy functioning.

The guidelines are inclusive of risk factors which reflect the major social and emotional problems of the population served. However, it may be necessary for districts/counties to further refine criteria within these parameters for dealing with identified levels of social service needs in accordance with available resources.

Referral:

--Any parent/infant/child dyad needs referral to social work to promote healthy parent/infant/child relationships.

In the absence of adequate social work staff, these Child Health patients need continuing social work intervention:

1. Infants/children whose mothers are 17 and under.
2. Single parents without adequate social/emotional/economic support.
3. Poor utilization of health care resources and/or community resources (when this behavior may cause serious consequences for the patient).
4. Parent lacks confidence in ability to care for infant or child.
5. Unrealistic expectations of infant/child (expectations grossly out of line with developmental stage of child).
6. Poor mother-infant/child interaction.
7. Emotional instability of primary caregiver.
8. Mental illness/retardation of parent and/or caregiver.
9. Prolonged separation from infant/child due to hospitalization with limited parental contact.
10. Parent who has difficulty coping with a child who has medical problem(s)/developmental delays. (Not accepting of medical problem(s)/developmental delays; not able to manage, fearful, rejects child).
11. Previous history of child abuse or neglect (either perpetrator or victim).

CHILD ABUSE AND NEGLECT

Child abuse and neglect are significant problems in the nation and the state. Health personnel might be expected to be principal sources of referral, yet most referrals come from schools, neighbors, relatives and law enforcement agencies.

Public health nurses occupy a special and unique place in the recognition and prevention of child abuse and neglect. Public health nurses have unique access to families and children.

Signs and symptoms are often evident to the nurse during contact with patient/family in the clinical setting. Visits in homes provide the public health nurse insights into the daily functioning of the family which are rarely evident in the formal clinic or hospital setting. School nurses are often the only health professionals children can independently consult regarding personal health concerns.

Primary prevention of child abuse and neglect consists of programs to reduce the risk before occurrence, whereas secondary prevention implies early detection of cases and prevention of repeated incidents. There should be cooperation among a number of individuals and constituents in the community including social services, private physicians, hospitals, schools, voluntary groups, law enforcement agencies and the courts.

INDICATORS OF CHILD ABUSE AND NEGLECT

The following indicators are not diagnostic of child abuse or neglect, nor are they the only possible indicators. They are included as a guide for the overall assessment of a suspected case.

1. During the Prenatal Period

    a. The mother seems overly concerned about the baby's sex or performance.
    b. The mother exhibits denial of the pregnancy (not willing to gain weight, no plans for the baby, refusal to talk about the situation).
    c. This child could be "one too many."
    d. The mother is extremely depressed over the pregnancy.
    e. The mother is very frightened and alone, especially in anticipation of delivery. Careful explanations do not seem to dissipate the fears.
    f. There is lack of support from baby's father and/or mother's family.
    g. The mother and/or father formerly wanted an abortion or seriously considered relinquishment, but have changed their minds.
    h. The parents come from an abusive/neglectful background.
    i. The parent's living situation is overcrowded, isolated, unstable or is intolerable to them.
    j. They do not have a telephone.
    k. There are no supportive relatives and/or parents.

2. During Delivery

a. Written entries should be made in the baby's chart.
   1) How does the mother LOOK?
   2) What does the mother SAY?
   3) What does the mother DO?
b. When the father attends delivery, record his reactions as well.
c. Specific interactions to look for:
   1) Passive reaction, either verbal or nonverbal; mother neither touches, holds, examines baby nor talks in affectionate terms or tones about the baby.
   2) Hostile reaction, either verbal or nonverbal; mother makes inappropriate verbalization, glances or disparaging remarks about the physical characteristics of the child.
   3) Disappointment over sex of baby.
   4) No eye contact.
   5) Non-supportive interaction between the parents.
   6) If interaction seems dubious, talk to the nurse or doctor involved with delivery for further information.

3. During the Postpartum Period

a. The mother doesn't have fun with the baby.
b. The mother avoids eye contact with the baby and avoids the direct en face position.
c. The verbalizations to the infant are negative, demanding, harsh, etc.
d. Most of the mother's verbalization to others about the child are negative.
e. The parents remain disappointed over the sex of the child.
f. Negative identification of the child, for example, significance of name, who he/she looks like and/or acts like.
g. The parents have developmental expectations far beyond the child's capabilities.
h. The mother cannot cope with the baby's crying; it makes her feel hopeless and helpless.
i. Feedings: the mother sees the baby as too demanding; she is repulsed by his messiness or ignores his demands.
j. Changing diapers is seen as a very negative, repulsive task.
k. The mother does not comfort the baby when he cries.
l. The father's and/or family's reactions to the baby are negative and non-supportive.
m. The mother is receiving little or no meaningful support from anyone.
n. There are sibling rivalry problems or a complete lack of understanding of this possibility.
o. The father is very jealous of the baby's drain on mother's time, energy and affection.
p. The mother lacks control over the situation. She is not involved nor does she respond to the baby's needs, but relinquishes control to the doctors and nurses.
q. When attention is focused on the child in her presence, the mother does not see this as something positive for herself.

4. Observation of Child

a. Physical Abuse

1) Appearance
   a) Unexplained bruises
      (1) on the face, lips or mouth
      (2) in various healing stages
      (3) on large areas of torso, back, buttock or thighs
      (4) clustered, forming regular patterns or reflective of an article (belts, cords)

   b) Unexplained burns
      (1) by cigarette, especially on feet, hands, back, buttock or thighs
      (2) immersion in hot liquid, including glove or sock like burns and doughnut shaped burns on back and buttocks
      (3) from electric burner or iron
      (4) by ropes tied on arms, neck, legs or torso

   c) Unexplained fractures
      (1) in various stages of healing
      (2) which are multiple

   d) Lacerations and abrasions
      (1) mouth, gums, lips and/or eye
      (2) on the external genitalia

   e) Human bite marks, especially when they appear adult size and are recurrent

2) Behavior demonstrating extremes which may be outside the range expected for the child's age group

   a) Wariness of physical contact with adults
   b) Apprehension when another child cries
   c) Fear of his/her parent(s)
   d) States fear of going home or cries when it is time to go
   e) Child reports injury inflicted by a parent

b. Emotional Abuse

1) Habit disorders, such as biting, sucking, rocking, enuresis, over or under-eating without physical cause
2) Conduct disorders, including withdrawal and antisocial behavior, such as destructiveness, cruelty and stealing
3) Neurotic traits, such as sleep disorders, speech disorders and inhibition of play
4) Psychoneurotic traits
5) Overly compliant, passive and undemanding
6) Extremely aggressive, demanding or angry

7) Over-adaptive behaviors which are either inappropriately adult or inappropriately infantile
8) Delays in physical, emotional and intellectual development
9) Attempts at suicide
10) Frequent comments and behavior suggesting low self-esteem

c. Sexual Abuse

Children are usually quite open when describing their illnesses and pains, but rarely will a child approach a nurse and state she is a victim of sexual abuse. The more usual situation is that the child's behavior signals something is wrong. Therefore, the nurse needs to be attuned to signs which may indicate sexual abuse. The list of physical and behavioral signs that follows is not exhaustive. It is not necessary for all, or even a majority, of the signs to be present in a child to warrant concern. The nurse must believe that sexual abuse could be occurring and investigate further.

The child's age is also a factor to consider in assessment of possible sexual abuse. When an infant is being subjected to inappropriate sexual stimulation, the following characteristic signs may be noted: excessive parental attention to and manipulation of the infant's genitals; reddened or traumatized genitalia or generalized symptoms, such as an altered activity level, eating or sleeping disturbances.

Toddlers and pre-school age children have difficulty verbalizing their fears and concerns. They may react to sexual abuse with insomnia, night terrors or developmental regression. Compulsive masturbation and advanced sexual utterances may signify the child is being abused. Physical signs in children at this age may range from a stomach ache to dysuria. Particular attention must be given to any genital irritation, laceration, abrasion, bleeding, discharge or infection. Venereal disease should be considered in children with anal or genital infection, discharge or irritation.

1) Signals of Sexual Abuse
   a) Unexpected sexual utterance or behavior, especially in young children, e.g., a child asking to see the school bus driver's sexual parts
   b) Unwilling to participate in physical activities
   c) Limited to no involvement in after school activities
   d) Child may appear withdrawn engage in fantasy or infantile behavior or even appear retarded
   e) Poor peer relationship
   f) Vague resistance to being alone with an adult/parent figure
   g) Fear of going home
   h) Runaway behavior
   i) Moderate to severe anxiety or depression, especially in young children
   j) Unusual accumulation of money, candy, favors
   k) Vague reports of molestation by strangers

l) Vague concern about or compulsive interest in own sexual parts by child
m) Responds to sexual behavior with extreme aversion or with seduction and promiscuity
n) Adolescent prostitution
o) Nightmares
p) Lighting fires, behavior associated with young male victims
q) Real or imagined somatic complaints
r) Pregnancy and/or venereal disease, particularly when child refuses to identify partner or has no known identified partner
s) Unexplained vaginal discharge
t) Bruises or bleeding external genital, vaginal or anal areas, inner thighs
u) Pain or burning associated with urination or defecation
v) Torn, stained or bloody clothing
w) Gagging response, sore throat, mouth or throat lesions (as the result of oral-genital contact)
x) Difficulty in sitting or walking
y) Signs of physical abuse
z) Sudden weight gain or weight loss
aa) Chemical abuse

2) Guide for Genital Assessment of the Sexually Abused Female

3) Further Indicators to the Potential for Sexual Abuse

a) One of the child's parents was abused as a child.
b) The child was previously abused.
c) Any of the child's siblings were previously abused.
d) The child is living in a foster home.
e) The child is part of a single-parent family, which may place the child at risk for abuse by the parent or other adults in the home.

d. Incestuous Abuse

Some children may be considered at "high risk" for incestuous abuse. Investigation is indicated when the following characteristics of an incestuous family are present in conjunction with any other signs evidenced in a child.

1) Deteriorating sexual relationship between parents with the absence of extramarital affairs by the parents.
2) Pattern of rigid, restrictive control by the father of the social life of his female children.
3) Limited contacts with the outside world by the family as a whole and by its individual members.
4) Alcoholism in one or both parents.
5) Vague reports by parent(s) that their child has been sexually abused by a stranger.

6) Parents expect adult behavior from children and deal with them as though they were adults.
7) Role reversal in the family, with children "caring" for the parents rather than the reverse.

e. Neglect

1) Consistent hunger, poor hygiene or inappropriate dress
2) Consistent lack of supervision
3) Consistent fatigue or listlessness
4) Abandonment
5) Unattended medical needs
   a) lack of diagnosis
   b) lack of treatment/medications
6) Unusual behavior
   a) begging for or stealing food
   b) constantly falling asleep in school
   c) poor attendance in school
   d) arriving at school very early or leaving very late
   e) addiction to alcohol and/or drugs
   f) engaging in delinquent acts
   g) rooming away from home without appropriate supervision

REFERRAL

The following section is taken from the SC Children's Code.

20-7-510. Persons to report.
(A) Any physician, nurse, dentist, optometrist, medical examiner or coroner, or any other medical, mental health or allied health professional, Christian Science practitioner, religious healer, school teacher or counselor, social or public assistance worker, child care worker in any day care center or child caring institution, police or law enforcement officer or any judge having reason to believe that a child's physical or mental health or welfare has been or may be adversely affected by abuse or neglect is required to report or cause a report to be made in accordance with this section.

(B) Except as provided in (A) of this section, any other person who has reason to believe that a child's physical or mental health or welfare has been or may be adversely affected by abuse and neglect may report in accordance with this section.

(C) Reports of child abuse or neglect made pursuant to this section may be made orally, by telephone or otherwise to the county department of social services, or in the alternative, to a law enforcement agency in the county where the child resides or is found.

DENTAL

INTRODUCTION

Dental diseases are among the most prevalent health problems in South Carolina. Ninety-eight percent of the State's population is affected with some form of dental disease at some time during their lives. Dental caries is considered to be a major health problem among South Carolina children. However, most dental disease in childhood is preventable. Child health providers can influence the course of dental disease in children through preventive measures such as educational programs, plaque control programs, fluoridation programs and screening programs.

DENTAL SCREENING

Dental screening consists of the examination of the teeth and surrounding structures looking for deviations from normal development as well as actual dental disease. See section on Physical Appraisal.

RECOMMENDED SCREENING AND DENTAL VISITS

The palate, gums and oral cavity should be inspected for evidence of congenital malformations such as clefts of the palate or abnormalities of mouth structures and evidence of infection or inflammation of the gum or oral mucosa. Dental development and presence of cavities should be assessed.

Premature loss of the primary teeth, especially the cuspids and molars, should be noted since this may cause drifting of the other teeth and affect the dental arch.

Beginning at age 2 1/2, all children should have periodic oral examinations by a dentist. (Recommend at least one visit each year.)

FLUORIDATION

Water fluoridation now ranks as one of the most cost effective preventive programs in public health. Community water fluoridation has been shown to reduce tooth decay by as much as 65 percent. Where fluoridated water is not ample, children should have prescribed fluoride drops or fluoride tablets according to the following schedule.

SCHEDULE OF FLUORIDE DROPS AND TABLETS FOR CHILDREN*
(in mg. of fluoride per day)

Age of Child	Parts per million of Fluoride in Water Supply			Type of Preparation
	Less than 0.3	0.3 to 0.7	Greater than 0.7	
Birth to 2 yrs.	0.25	0	0	Drops
2 to 3 yrs.	0.50	0.25	0	Drops or tablets
3 to 16 yrs.**	1.0	0.50	0	Tablets

* Recommended by the Committee on Nutrition of the American Academy of Pediatrics and the Council on Dental Therapeutics of the American Dental Association.
**The American Academy of Pediatrics recommends providing tablets through at least age 16.

The other methods of applying fluoride to teeth include toothpaste containing fluoride, fluoride mouth rinses and fluoride gels or solutions which may be applied by a health professional or by the individual.

FLUORIDES FOR USE IN THE DENTAL OFFICE

Dentists and dental auxiliaries apply concentrated fluorides directly to the teeth. These fluorides are either gels, applied in a mouth tray or solutions that are painted directly onto the teeth. To be effective for decay-prone individuals, the procedure should be repeated at least every six months.

FLUORIDES FOR USE AT HOME

The routine use of a fluoride toothpaste is recommended for both children and adults. Regular, thorough brushing with such a dentifrice will give some protection against tooth decay, whether or not other forms of fluoride are used.

Diluted fluoride mouth rinse for daily use can be bought without a prescription or solutions may be prescribed by a dentist. Those available over-the-counter are either a neutral sodium fluoride solution or a stannous fluoride tablet to be dissolved in water. Either of these solutions should be used as a one-minute rinse each day.

Self-applied fluoride gels may be prescribed by dentists for persons who are most susceptible to decay. The dentist will make trays to fit the patient's upper and lower jaws exactly or provide stock trays that generally conform to the shape of the jaws. Then, at home, the patient puts the fluoride gels in these trays and keeps them in place for as long as the dentist directs (usually a few minutes).

BOTTLE MOUTH

Bottle feeding is one method of providing nourishment to an infant, but too often the bottle containing sweetened liquids and formulas is misused as a pacifier for comforting the infant/child or controlling behavior. This habit can lead to bottle mouth, a condition in which a child's teeth are destroyed by dental caries (tooth decay).

There is also concern when an infant/child is allowed to fall asleep with the bottle in his mouth. At bedtime or during naps, the saliva flow decreases, allowing the sugary liquid to pool around the teeth. When this pooled liquid remains in the mouth for prolonged periods, teeth are constantly under attack.

HOW TO PREVENT BOTTLE MOUTH

Avoid liquids such as sugar water, sweetened gelatin and soft drinks. Although milk normally does not promote decay, it, too, can become harmful when it is allowed to remain in the mouth for long periods. A pacifier dipped in any sugary substance can be just as damaging as sugar in the bottle. A bottle with cool water or a clean pacifier should be used if necessary between feedings.

Since frequent contact of sweetened liquids with the infant's teeth is damaging, parents should wipe the teeth and gums after each feeding with a damp washcloth or gauze pad to remove plaque. The child's teeth should be brushed without a dentifrice as soon as teeth begin to erupt. As the child learns to empty mouth (spit-out) a fluoride toothpaste should be added.

PARENT DENTAL EDUCATION

1. Never allow your infant to fall asleep with a bottle containing anything but WATER.

2. If your infant needs sucking for comfort, fill the bottle with water or use a clean pacifier.

3. Clean the infant's teeth and gums after every feeding.

4. Take the child for regular dental checkups beginning approximately 2 1/2 years of age.

MATERIALS AVAILABLE FOR DENTAL EDUCATION

Dental educational materials are available from Educational Resources Center (ERC).

PATIENT AND FAMILY EDUCATION

Anticipatory guidance topics on growth and behavior, dental care, nutrition, safety, preventive health care and emergency/home treatment are found in the health education manual Step by Step for children from birth to six years.

Health education materials, including brochures, fliers, and posters may be ordered from Educational Resources Center (ERC).

Educational films and videos can also be ordered through ERC.

GENETIC SERVICES FOR THE HEALTH DISTRICTS

Greenwood Genetic Center

Appalachia I Appalachia II Appalachia III Upper Savannah	Genetic Associates Greenwood Genetic 1 Gregor Mendel Circle Greenwood, SC 29646 233-9411

University of South Carolina

Catawba West Midlands East Midlands Wateree Lower Savannah I	 Dept. of Obstetrics and Gyneocology University of South Carolina School of Medicine 2 Medical Park Rd., Suite 301 Columbia, SC 29203 765-7316

Medical University of South Carolina

Pee Dee I Pee Dee II Waccamaw Trident Low Country	Genetic/Birth Defects Center MUSC 171 Ashley Avenue Clinical Sciences Bldg., Rm 351 Charleston, SC 29403 792-2620

GENETIC SERVICES - PURPOSE & PROCESS

PURPOSE: The ultimate goal of genetic services is to reduce the incidence of genetic disease, thereby decreasing the financial and emotional impact of these disorders on the individual, the family and society.

Prevention of genetic disease requires that genetic services be offered to at risk persons as early as possible. Early intervention allows utilization of genetic information in making important family-planning decisions.

Since many parents-to-be are unaware of potential risk of genetic disease to offsprings, the health care worker, knowledgeable of indications for genetic referral, can alert at-risk persons to their need for genetic services.

PROCESS: Identify the family in need of genetic services

Identify the family's concerns, questions

Describe the genetic evaluation process

Obtain history and records - medical history
- family history

Physical examination

Laboratory analysis (when indicated)

Neuropsychological evaluation (when indicated)

Decision about diagnosis and etiology - definite, probable, suspected or unknown

Explain results and explore their significance to the family in a supportive manner - prognosis and natural history
- anticipated problems
- recommendations for management
- etiology, including hereditary contributions to the disorder
- chance of recurrence in family members
- alternatives for dealing with the chance of recurrence

Suggest or refer to additional management and/or support resources (if indicated)

Follow-up evaluations and counseling - aid family's understanding
- aid adjustment
- follow child's progress
- share new developments with family
- provide genetic services to extended family at risk

PHYSICAL ASSESSMENT

Many patterns of physical abnormalities have been identified as genetic syndromes. A single minor abnormal finding is not usually significant. Most people have one or more variations from normal. Of importance is the total assessment of the individual.

Many genetic disorders disrupt growth and development, so monitoring of growth and development is of prime importance. Serial measurements of height, weight, and head circumference are the best indicators of growth, while development can be assessed by the use of any standard tool. Any significant variation from normal warrants a more thorough evaluation. Many observations of physical features can be made without touching a child. Looking at the general size for age, body shape, symmetry, movement, expression, etc., is important. A person should be referred for genetic evaluation if <u>two or more</u> unusual features are variations from normal and which may reflect a more basic genetic disorder.

The following is a <u>partial</u> listing of abnormal findings which may be present in children with genetic disorders:

HEAD
- macrocephaly
- microcephaly - greater than one SD below normal
- hydrocephalus
- frontal bossing
- receding forehead
- prominent or flat occiput
- asymmetry
- premature closure of sutures
- delayed closure of fontanels

FACE
- unusually flat, round, broad, triangular or coarse face

HAIR
- low hairline
- excess hair
- white forelock
- bushy eyebrows
- eyebrows extending to midline
- scalp defect
- unusually sparse hair

NOSE
- wide nasal bridge
- short nose
- depressed nasal bridge
- anteverted nostrils

EYES
- downward slanting
- upward slanting
- ptosis of eyelids
- epicanthal folds
- hypertelorism
- hypotelorism
- nystagmus

	- strabismus - coloboma of iris or eyelids - microphthalmia - prominent eyes - corneal opacity - cataracts
EARS	- (some of these malformations are frequently associated with kidney disorders) - large - low set - rotated - malformed - protuberant - preauricular tags or sinuses
MOUTH	- cleft lip and/or palate - micrognathia - high arched palate - unusual contour of mouth (cupid bow, carp, thin upper lip) - large tongue - dental abnormalities
NECK	- short - webbed
HANDS & FEET	- syndactyly - fused fingers or toes - polydactyly - extra digits - clinodactyly - laterally bent finger - short first toe - club foot - deep flexion creases - simian crease - unusually long or short fingers - wide space between toes - rocker bottom feet - abnormal thumbs - hypoplastic nails
BODY & LIMBS	- unusually tall or short - scoliosis, lordosis - pectus excavatum - limb reduction defects - increased carrying angle
GENITALIA	- ambiguous - enlarged clitoris - small penis - bifid scrotum - undescended testicles - hypospadias

SKIN
- cafe-au-lait spots
- port wine stain
- dry, scaly
- telangiectasia
- too much or too little hair
- hypo - or hyper pigmentation

INDICATIONS FOR CHROMOSOME ANALYSIS

The list below gives many conditions in which chromosome analysis may be indicated. These conditions do not always have a chromosomal etiology. However, if another cause is not evident, analysis to exclude a chromosome abnormality may be necessary.

Individual with:

1. Suspected classic chromosomal syndrome such as Down Syndrome
2. Mental retardation of undetermined etiology
3. Dysmorphic features (see Physical Assessment)
4. Multiple congenital abnormalities
5. Abnormalities of sexual development
   a. ambiguous genitalia
   b. pubertal failure
6. Abnormalities of growth
7. Certain types of malignancies

Couples with:

1. Repeated spontaneous abortions
2. Infertility

Family members:

1. Both parents of a child with a chromosomal duplication, deletion, or translocation, or other rearrangement
2. All family members at risk of having a chromosomal rearrangement

Products of pregnancy losses:

1. Abortuses
2. Stillborn infants - malformed
   - undetermined etiology